



Australian Government

ICTNWK605 Design and configure secure integrated wireless systems

Release: 1

ICTNWK605 Design and configure secure integrated wireless systems

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to produce a verified radio frequency (RF) design plan for a wireless local area network (WLAN) and to design, configure and troubleshoot secure integrated wireless systems.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as wireless network installers, 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. Plan and conduct a site survey for setting up a wireless network	1.1 Assess client requirements to plan for selecting appropriate WLAN technology and network elements 1.2 Evaluate existing network infrastructure and produce a wireless network topology to determine upgrade or new installation requirements 1.3 Prepare basic RF deployment considerations related to site survey design of data or voice over WLAN applications 1.4 Produce a survey model, including deployment

ELEMENT	PERFORMANCE CRITERIA
	characteristics to meet client requirements 1.5 Produce a spectral analysis predictive layer 1 site survey verified by a physical site survey 1.6 Analyse the survey results produced with an RF network design for a secure wireless network 1.7 Conduct an RF field trial for final evaluation of network topology and network element placements
2. Prepare design specifications and plan for secure enterprise WLANs	2.1 Prepare for work according to relevant legislation, workplace health and safety (WHS), codes, regulations and standards 2.2 Produce design specifications and layout for wireless network, using spread spectrum technology for enhanced network security 2.3 Review design plans to ensure sound WLAN RF principles and compliance with wireless regulatory bodies, standards and certifications
3. Configure and test a controller-based WLAN	3.1 Produce a controller-based wireless architecture from a possible range of industry-based wireless network architectures 3.2 Configure and test a WLAN controller and access points, using controller-based AP discovery and association to enable roaming facilities 3.3 Configure the basics of a stand-alone access point 3.4 Configure and test client operating system WLAN configuration and install vendor specific software and utilities where applicable
4. Configure and test WLAN security	4.1 Review the general framework of wireless security and security components for securing the WLAN 4.2 Configure and test identification assignments to network elements 4.3 Configure and test authentication methods, using different sources of authentication 4.4 Configure and test encryption methods to comply with network security policies
5. Conduct WLAN maintenance and troubleshooting	5.1 Evaluate WLAN troubleshooting methods for controllers, access points and client methodologies 5.2 Use networking tools to maintain and troubleshoot network

ELEMENT	PERFORMANCE CRITERIA
	5.3 Transfer device configurations and operating system (OS), using maintenance tools and commands

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	1.1, 1.6, 2.3, 4.4	Recognises and interprets complex technical documentation to determine and confirm job requirements
Writing	1.1, 1.4, 1.5, 2.2	Develops a broad range of materials, including design and technical specifications, for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Numeracy	3.2, 3.4, 4.2-4.4	Interprets numerical data and undertakes measurements to evaluate performance and interoperability of network
Navigate the world of work	2.1, 2.3, 4.4	Monitors adherence to legal and regulatory rights and responsibilities for self and possibly others
Interact with others	1.1, 1.4	Identifies and uses appropriate communication conventions and protocols when liaising with internal and external stakeholders on technical, operational and business-related matters
Get the work done	1.1-1.3, 1.5-1.7, 2.2, 3.1-3.4, 4.1-4.4, 5.1- 5.3	- Demonstrates a sophisticated understanding 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 - 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 - Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information - May operate from a broad conceptual plan,

		coordinating the process with others to identify functional, performance and management features associated with the operation of complex switched networks • Uses understanding of context to troubleshoot and debug WAN issues, adapt configuration procedures to network requirements and reconfigure, depending on differing operational contingencies, risk situations and environments
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK605 Design and configure secure integrated wireless systems	ICANWK605A Design and configure secure integrated wireless systems	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 ICTNWK605 Design and configure secure integrated wireless systems

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Performance Evidence

Evidence of the ability to:

- plan and conduct a wireless local area network (WLAN) site survey
- produce design specifications and layout of wireless network
- configure and test a controller-based WLAN
- test wireless security configurations
- maintain a WLAN.

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 authentication and encryption methods
- summarise configuration, verification and troubleshooting procedures regarding:
 - router-operation
 - routing virtual local area network (VLAN) switching
 - inter-switching communications
- outline configuration of WLAN securities
- clarify current wireless regulations, standards and certifications
- summarise internetwork operating system (IOS) and internet protocol (IP) networking models
- explain radio frequency (RF) and WLAN technology and network design
- outline RF propagation and implementation issues
- explain spread spectrum technologies
- summarise wireless network topologies and elements
- outline wireless networking protocols
- describe WLAN devices, their specification and use

- summarise WLAN radio frequencies characteristics and their measuring techniques.

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 must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- stand-alone and lightweight WLAN controllers and access point (AP)
- hardware and software WLAN site survey tools.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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