Australian Government

Department of Education, Employment and Workplace Relations

ICANWK405A Build a small wireless local area network

Release: 1

ICANWK405A Build a small wireless local area network

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to build and arrange connectivity to a basic wireless local area network (WLAN).

Note: If more than one wireless zone is required, then refer to ICANWK417A Build an enterprise wireless network.

Application of the Unit

This unit applies to the development of a small wireless local area network where it is appropriate to use one wireless access point or wireless router in a small to medium-sized enterprise.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Confirm client and equipment requirements	1.1 Identify, clarify and organise ***client*** requirements according to network needs and ***organisational requirements*** 1.2 Ensure an appropriate person has given the authority for wireless network access 1.3 Evaluate requirements along with business needs and translate into technical requirements 1.4 Identify ***components*** to be installed in order to meet the technical requirements 1.5 Select position for access point, based on ***user*** requirements and environmental conditions 1.6 Arrange for preliminary work to be carried out to meet cabling and power requirements
2. Select, install and configure wireless access point	2.1 Select access point device based on current and future client needs 2.2 Install and configure access point to provide wireless access to ***network*** 2.3 Configure services 2.4 Test access point and verify wireless connection and security arrangements 2.5 Select, install and configure appropriate wireless card where necessary for legacy equipment
3. Configure network	3.1 Configure security and other key parameters consistent with ***commercial and business requirements*** 3.2 Test ***security*** and firewall arrangements with appropriate test equipment 3.3 Test the network with user equipment for general compatibility and access
4. Train users	4.1 Determine devices to be connected to the network 4.2 Demonstrate how pairing and log-on arrangements are established to user 4.3 Inform users of wireless network etiquette and traffic capacity issues 4.4 Develop user ***documentation***
5. Monitor and administer wireless	5.1 Monitor wireless network performance using diagnostic ***tools***

network	5.2 Debug networking issues to maintain trouble-free wireless connection 5.3 Document current settings and store securely

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with client to determine functional requirements of network
- literacy skills to document client requirements
- problem-solving skills to troubleshoot and debug:
  - connectivity issues
  - security issues
- research skills to determine most suitable solution for client
- technical skills to:
  - design, develop and implement various wireless network solutions
  - implement wireless networking strategies and configure wireless network software and hardware
  - implement WLANs.

Required knowledge

- features of security threats
- overview knowledge of:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - authentication methods
  - network protocols and operating systems
  - security protocols, standards and data encryption
- detailed knowledge of:
  - bandwidth and quality of service
  - factors affecting signal quality
  - layer 2 and layer 3 design issues
  - SOHO
  - transmission control protocol or internet protocol (TCP/IP) protocols and applications
  - wireless security strategies
  - wireless topologies
  - WLAN solutions.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • develop, implement and maintain wireless networks • install, configure and test wireless access points • test security and network to business specifications • develop user training material • monitor and resolve wireless network issues.
Context of and specific resources for assessment	Assessment must ensure access to: • network technical requirements • network infrastructure, including wireless hardware and software • appropriate learning and assessment support when required. Where applicable, physical resources should include equipment modified for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal or written questioning to assess candidate's knowledge of underpinning knowledge and skills • direct observation of candidate performing the tasks required to successfully create a small WLAN • documentation produced in a small project environment that reflects understanding of client requirements and the technical skills required for a small WLAN.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined

	with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Client may include:	• external organisations • individuals • internal departments • internal employees.
Organisational requirements may include:	• preventative maintenance and diagnostic policy • problem-solving processes • roles and technical responsibilities in network management • vendor and product service level support agreements • work environment.

Components may include:	• wireless access and software
	• hardware:
	  • asymmetric digital subscriber line (ADSL) modems
	  • antennas and other connectivity devices
	  • mobile equipment
	  • modems
	  • wireless access points
	  • networks
	  • personal computers
	  • power controllers
	  • remote sites
	  • servers
	  • UPS
	  • workstations
	• cabling:
	  • category 5e
	  • category 6
	  • category 7
	  • coaxial and fibre.

User may include:	• department within the organisation • person within a department • third party • community members.

Network may include:	• domestic • small enterprise WLANs.
Commercial and business requirements may include:	• availability • backup and recovery of data • confidentiality • firewalls • hacking prevention • integrity • password logons • remote access to internal network.
Security may include:	• AAA • Diameter • EAP or LEAP • IPSec • PKM • smart cards • SSL • tokens • WEP • WPA or WPA2.
Documentation may follow:	• audit trails • client training • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • maintaining equipment inventory • naming standards • project management templates and report writing • satisfaction reports • version control.
Tools may include:	• data and voice integration measurements • network performance software.

Unit Sector(s)

Networking