



Australian Government

Department of Education, Employment and Workplace Relations

ICAB4240C Build an enterprise wireless network

Release: 1

ICAB4240C Build an enterprise wireless network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build an enterprise wireless network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
------------------------	---

Application of the Unit

Application of the unit	
--------------------------------	--

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
-----------------------------	--

Elements and Performance Criteria Pre-Content

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

ELEMENT	PERFORMANCE CRITERIA
1. Select, install and configure access points and other wireless devices	1.1. Select appropriate hardware including access points, bridges and other wireless devices based on current and future needs of the enterprise 1.2. Install and configure access points, bridges and other wireless devices to provide wireless access to network 1.3. Configure security , monitoring, logging and quality of service features consistent with standards and protocols 1.4. Test wireless network systems performance and verify that it meets enterprise requirements and is consistent with standards and protocols
2. Select, install and configure antennas	2.1. Select appropriate antennas based on current and future needs of the business 2.2. Safely install and configure antennas to provide wireless access to network 2.3. Obtain optimal signal strength
3. Secure wireless network	3.1. Identify possible security threats to assets 3.2. Configure client server and helper security devices 3.3. Configure associations and filters
4. Monitor and administer wireless network	4.1. Monitor wireless network performance using diagnostic tools including appropriate software 4.2. Debug networking issues to maintain trouble-free wireless connection 4.3. Document current settings and store securely consistent with commercial and business requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Design, development and implementation of various wireless network solutions
- Ability to implement wireless networking strategies and configure wireless

REQUIRED SKILLS AND KNOWLEDGE

- network software and hardware
- Implementing LANs
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Factors affecting signal quality
- Wireless topologies
- Wireless security strategies
- SOHO and enterprise LANs
- Layer 2 and layer 3 design issues
- Bandwidth and quality of service
- WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Audit and intrusion detection systems

Evidence Guide

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 following is essential:

- Assessment must confirm the ability to develop, implement and maintain wireless networks.

To demonstrate competency in this unit the following resources will be needed:

- Network technical requirements
- Network infrastructure, including wireless hardware and software

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE	
	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and

EVIDENCE GUIDE

services

Range Statement**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.

Hardware may include but is not limited to:

- mobile equipment
- workstations
- personal computers
- modems wireless access points
- power controllers
- UPS
- antennae and other connectivity devices
- networks
- DSL modems
- remote sites
- servers

Network topology may include:

- cabled connected single zone
- multiple zone
- stand-alone multi-zone wireless networks
- indoor and outdoor installations
- satellite connections
- carrier links
- LMDS
- MMDS
- Free Space Optics

Security may include but is not limited to:

- IPSec
- SSL
- PKM
- LEAP
- WEP
- WPA

RANGE STATEMENT	
	• AAA • Diameter • tokens • smart cards
Standards may include:	• ISO/IEC/IEEE/IETF/ITU/AS standards • organisational standards • project standards
Enterprise requirements may include but are not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in network management • vendor and product service-level support agreements
Assets may include:	• data and information • intellectual property • physical assets
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Commercial and business requirements may include:	• Back-up and recovery of data • Remote access to internal network • Password logons • Firewalls • Hacking prevention • Confidentiality • Integrity • Availability
Client may include but is not	• internal departments • external organisations

RANGE STATEMENT	
limited to:	- clubs - communities - individual people - internal employees
User may include:	- a department - a department within the organisation - community members - a third party
Cabling may include but is not limited to:	to Category 5e, 6, 7 coaxial and fibre
Tools may include but are not limited to:	- network performance software - data and voice integration measurements - policing and shaping tools - frequency and spectrum analysers - cable testing - equipment testing - carrier connection tests - power meters - radiation meter

Unit Sector(s)

Unit sector	Build
--------------------	-------

Co-requisite units

Co-requisite units		

Competency field

Competency field	
------------------	--