



Australian Government

Department of Education, Employment and Workplace Relations

ICANWK606A Implement voice applications over secure wireless networks

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICA11 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use network tools, equipment, software and protocols to design and use voice applications over a wireless local area network (WLAN).

Application of the Unit

This unit applies to integrating voice over wireless local area network (VoWLAN) services into the WLAN and implementing quality of service (QoS), multi-protocol label switching (MPLS), and high bandwidth applications into the wireless network. Relevant job roles include advanced wireless help-desk technician, wireless network support specialist and wireless network engineer.

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
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Specify requirements for voice over wireless architecture	1.1 Analyse voice requirements for use over a wireless network 1.2 Specify wireless requirements for voice applications for design considerations 1.3 Verify network for voice readiness and suitability
2. Design the implementation of secure VoWLAN	2.1 Configure wireless client devices 2.2 Design and configure the WLAN for VoWLAN with security configurations 2.3 Design and configure infrastructure devices 2.4 Devise structured troubleshooting methodology for VoWLAN implementation
3. Design, implement and QoS for wireless applications	3.1 Plan general design considerations for wired QoS 3.2 Design wireless QoS deployment schemes 3.3 Configure WLAN equipment for QoS
4. Design, implement and test multicast over wireless environment	4.1 Evaluate general multicast concepts 4.2 Analyse the implications for multicast in 802.11 4.3 Configure multicast requirements for a wireless network 4.4 Devise structured troubleshooting methodology for multicast in a WLAN environment
5. Plan and scope the wireless network for video and high-bandwidth applications	5.1 Design and implement QoS for latency-sensitive applications 5.2 Analyse the requirement for video applications over 802.11n WLAN 5.3 Calculate and predict bandwidth requirements for video applications over the wireless network 5.4 Analyse the impact of the WLAN interconnectivity for devices on QoS for devices or the wired side

Required Skills and Knowledge

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

Required skills

- communication skills to liaise with internal or external personnel on technical, operational and business-related matters
- literacy skills to:
 - interpret technical documentation
 - write reports as required
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to:
 - coordinate the process in liaison with others
 - plan, prioritise and monitor own work
- problem-solving and contingency-management skills to:
 - troubleshoot and debug WLAN issues
 - adapt configuration procedures to requirements of network
 - reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to investigate appropriate hardware to meet requirements
- technical skills to:
 - select and configure networking devices and assess and implement security requirements
 - use networking tools.

Required knowledge

- configuration, verification and troubleshoot procedures to undertake:
 - router operation and routing
 - VLAN switching and inter-switching communications
- IOS and IP networking models
- video and high bandwidth applications and requirements
- voice applications and protocols
- VoWLAN technologies
- wireless:
 - current regulations, standards and certifications
 - deployment schemes
 - network security technology
 - network topologies and elements
 - networking protocols
- WLAN devices and their specification and use.

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: • produce voice over wireless architecture requirements • evaluate, design and implement voice applications over WLAN • use network tools to configure and test wireless infrastructure and applications.
Context of and specific resources for assessment	Assessment must ensure access to: • site where network installation may be conducted • hardware and software • organisational guidelines • computers • stand-alone and lightweight WLAN controllers and AP • hardware and software LAN/WLAN voice technologies • appropriate learning and assessment support when required • modified equipment 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: • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of documentation prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • verbal or written questioning of required knowledge.
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.
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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.

<i>Voice requirements</i> may include:	• codecs • data flow • hardware • skinny call control protocol (SCCP) • session initiation protocol (SIP) • software • standards.
<i>Wireless requirements for voice</i> may include:	• cell overlap • cell separations • delay • jitter • latency • QoS • traffic separation.
<i>Security</i> may include:	• 802.11r • Cisco centralised key management or proactive key caching (CKM/PMK) • extensible authentication protocol-flexible authentication via secure tunnelling (EAP-FAST) • lightweight extensible authentication protocol (LEAP) • protected extensible authentication protocol (PEAP) • wi-fi protected access with extensible authentication protocol-transport layer security (WPA or WPA2 with EAP-TLS).

Unit Sector(s)

Networking