



Australian Government

ICTNWK628 Design and build integrated VoIP networks

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with the Information and Communications Technology Training Package Version 8.0. • Supersedes and is equivalent to ICTNWK610 Design and build integrated VoIP networks. • Supersedes and is not equivalent to ICTNWK611 Configure call processing network elements for secure VoIP networks.

Application

This unit describes the skills and knowledge required to operate specialised tools, hardware, software and networking components to design and build internet protocol (IP)-based integrated voice over network into small-to-medium organisations.

The unit applies to individuals who may be voice over internet protocol (VoIP) network support specialists, VoIP network engineers and installers who are independently responsible for VoIP network management, using specialised information and communications technology (ICT) skills and knowledge.

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 for VoIP network deployment	1.1 Confirm work brief and tasks according to organisational policies and procedures 1.2 Assess current state network architecture and VoIP call flow 1.3 Analyse existing operating systems, networked devices, endpoints and limitations 1.4 Create VoIP network deployment plan according to analysis

ELEMENT	PERFORMANCE CRITERIA
	1.5 Create site numbering plan and assign calling privileges 1.6 Select and source configuration hardware, software and tools
2. Produce pilot VoIP network components	2.1 Design VoIP network layout according to work brief 2.2 Create VoIP network architecture 2.3 Configure pilot VoIP network with gatekeeper 2.4 Test pilot VoIP network and rectify any issues 2.5 Confirm interoperation of gatekeepers in network 2.6 Confirm IP-to-IP gateway functionality
3. Deploy VoIP network and test functionality	3.1 Configure final VoIP according to VoIP network deployment plan 3.2 Implement address hiding, media interworking, and call admission controls into VoIP network 3.3 Conduct post-deployment testing and rectify any issues according to organisational procedures and technical guidelines 3.4 Conduct security assessment of VoIP network and implement security controls 3.5 Develop and securely file documentation on completed work tasks according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Numeracy	Interprets numerical data in the planning phase and undertakes measurements to evaluate network interoperability
Reading	Interprets complex technical information to determine and adhere to business requirements and deployment plans
Planning and organising	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
Problem solving	Uses formal analytical and lateral problem-solving techniques to identify issues and implement solutions

Skill	Description
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 • Monitors and controls access to digitally stored and transmitted information

Unit Mapping Information

Supersedes and is equivalent to ICTNWK610 Design and build integrated VoIP networks.

Supersedes and is not equivalent to ICTNWK611 Configure call processing network elements for secure VoIP networks.

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 ICTNWK628 Design and build integrated VoIP networks

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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:

- configure at least one voice over internet protocol (VoIP) network
- conduct at least one of the following VoIP network security assessments on the configured VoIP network:
 - gateway assessment
 - firewall configuration assessment
 - cyberattack simulation
 - application-based security scanning
 - patching procedures.

In the course of the above, the candidate must:

- implement two security controls to minimise VoIP network vulnerabilities
- apply required organisational policies and procedures.

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:

- functions and features of VoIP network components, including:
 - codecs
 - call flows
 - address hiding

- network switches and ports
- topologies, architectures and elements
- calling privileges
- internet protocol (IP)-to-IP gateways
- layout designs
- configuration hardware, software and tools
- methods to configure network components using technical guidelines
- key types and features of networked devices, equipment and endpoints, including:
 - handheld devices
 - mobile devices
 - network switches
 - ports
 - routers
- key features of numbering plans, including:
 - digit manipulation
 - path selection process
- key design procedures and features of VoIP network plans, including:
 - VoIP network deployment plans
 - VoIP network post-deployment plans
- key VoIP protocols and their impact on voice quality and network performance, including:
 - H.323 protocol
 - session initiation protocol (SIP)
 - media gateway control protocol (MGCP)
- key procedures for system information management, including:
 - quality of service (QoS)
 - service level management (SLM)
 - service level agreement (SLA)
- key VoIP network testing and troubleshooting procedures, including:
 - address hiding procedures
 - real-time test protocols
 - call management protocols
 - call admission controls
 - gateway signalling protocols
 - dial plan resolution protocols
- internetwork operating system (IOS) and IP networking models
- telephony call processing between traditional circuits and contemporary packet-based networks
- functions and features of:
 - VoIP network interoperation and media interworking
 - local area network (LAN) and wide area network (WAN) topologies

- wireless LAN (WLAN) topologies
- controllers and access points
- configuration and verification procedures for basic router operation, VLAN routing switches and inter-switching communications
- VoIP network design considerations
- VoIP network deployment schemes
- VoIP networking technical guidelines and standards
- techniques to select and implement network vulnerability security controls
- organisational policies and procedures required to demonstrate the performance evidence.

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 where a VoIP network is designed, built and integrated
- required network infrastructure, including tools, hardware, software and configuration components
- stand-alone, lightweight online controllers and access points
- organisational policies and procedures required to demonstrate the performance evidence.

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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