



Australian Government

ICTNWK529 Install and manage complex ICT networks

Release: 1

ICTNWK529 Install and manage complex ICT networks

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 install and manage enterprise-wide information and communications technology (ICT) networks.

It applies to individuals with excellent ICT skills who are working as senior networking staff responsible for the sustainability of an organisation by using virtualisation technologies in complex computing environments of medium- to-large companies to provide network services and resources.

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 design a complex network to meet business requirements	1.1 Review network design, business requirements and latest vendor technical specifications for network components 1.2 Research options available for providing the network functionality required 1.3 Plan network implementation to provide network services and resources to meet business requirements
2. Design and implement a security strategy	2.1 Analyse requirements for internal and external security 2.2 Design security strategy to meet requirements 2.3 Implement security strategy

ELEMENT	PERFORMANCE CRITERIA
	2.4 Undertake ongoing monitoring of the viability and reliability of network security, through testing and use of technical tools 2.5 Continually monitor internal and external network access for security breaches
3. Install and configure a complex network to meet business requirements	3.1 Check and install cabling and associated components according to industry standards 3.2 Install and configure servers, routers, switches or other devices to provide internet protocol (IP) addressing and routing 3.3 Install and configure servers, routers, switches or other devices to provide name resolution 3.4 Install and configure servers, routers, switches or other devices to provide network services 3.5 Install and configure remote access services 3.6 Install and configure devices to provide data management services
4. Provide integrated network services across a complex network	4.1 Integrate multiple network services across network 4.2 Analyse and resolve interoperability issues 4.3 Optimise performance 4.4 Rectify security conflicts arising from integrating services
5. Plan, design and implement voice and video business communications system	5.1 Install software and configure and test voice over internet protocol (VoIP) and videoconferencing services 5.2 Incorporate the use of a communications server to provide real-time multimedia communications 5.3 Select common voice and videoconferencing codecs according to standards and practices
6. Manage and support a complex network	6.1 Identify and evaluate appropriate network management tools to assist in the administration of the complex network 6.2 Select and install network management tools according to industry and organisational standards 6.3 Set and monitor alerts and logs 6.4 Capture and analyse network performance data 6.5 Implement automated server updates 6.6 Implement desktop management policies 6.7 Implement automated virus checking

ELEMENT	PERFORMANCE CRITERIA
	6.8 Use remote management tools
7. Test network functionality and obtain sign-off	7.1 Test network functionality and record results 7.2 Record results of network functionality test 7.3 Complete network documentation according to organisational standards

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, 1.2, 2.1, 6.6	Recognises and interprets technical and organisational documentation to determine and confirm job requirements
Writing	2.2, 7.1-7.3	Develops a broad range of material, including recording test results for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations
Oral Communication	2.1	Uses listening and questioning skills to confirm understanding for requirements, and participates in a verbal exchange of ideas/solutions
Numeracy	6.4	Interprets numerical data when taking measurements and evaluating the performance and interoperability of network services
Navigate the world of work	3.1, 5.3, 6.2, 7.3	Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations
Get the work done	1.1, 1.3, 2.3-2.5, 3.1-3.6, 4.1-4.4, 5.1-5.3, 6.1-6.8, 7.1	- Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks - Actively identifies, creates and utilises linkages to enhance knowledge sharing, idea creation, individual and collective engagement, and work outcomes

		• 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, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues • Uses nuanced understanding of context to recognise anomalies in a network environment and subtle deviations to normal expectations, focussing attention and remedying problems as they arise
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK529 Install and manage complex ICT networks	ICANWK529A Install and manage complex ICT networks	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 ICTNWK529 Install and manage complex ICT networks

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Performance Evidence

Evidence of the ability to:

- design and implement a complex network that involves integrating multiple network services to meet business requirements
- design and implement an appropriate security strategy for a complex network
- monitor and test the performance of aspects of the solution
- provide ongoing management and support of the network.

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:

- describe firewall configurations and their application
- summarise internet protocol (IP) addressing and network configuration
- summarise and apply the following aspects of a network:
 - infrastructure
 - load balancing for applications
 - security
 - server operating systems
 - service configuration, including:
 - domain name system (DNS)
 - dynamic host configuration protocol (DHCP)
 - file transfer protocol (FTP)
 - network time protocol (NTP)
 - server messages block (SMB)
 - mail

- proxy
- web
- service management
- identify and describe troubleshooting tools and techniques, including network diagnostic utilities
- outline the purpose of user authentication and directory services
- describe voice over internet protocol (VoIP)
- describe virtual private network (VPN).

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 network industry, and include access to:

- network design and business requirements documents
- a complex network or hardware and software required to build a network involving multiple servers, multiple physical locations (or simulation of) and a combination of network services.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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