



Australian Government

ICTNWK541 Configure, verify and troubleshoot WAN links and IP services

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to use required tools, equipment, software and protocols to install, operate and troubleshoot switches and routers in a medium-size enterprise network.

It applies to individuals who are employed in desk technician and network support technician roles.

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 to install medium enterprise Wide Area Network (WAN) links	1.1 Review existing network design documentation and determine currency and completeness according to organisational requirements 1.2 Analyse organisational security protocol requirements 1.3 Determine access and security requirements of required tools, equipment, software 1.4 Develop and document installation plans and detail prioritised tasks and contingency arrangements according to organisational requirements 1.5 Obtain installation plan sign off from required personnel

ELEMENT	PERFORMANCE CRITERIA
2. Configure WAN links	2.1 Determine WAN connection method requirements according to installation plan specifications 2.2 Configure and verify required serial WAN configuration and WAN protocols according to vendor specifications 2.3 Configure required virtual private network (VPN) and site-to-site technology according to vendor specifications 2.4 Determine and configure an asymmetric digital subscriber line (ADSL) connection according to installation plan specifications
3. Configure and verify IP services on a router	3.1 Configure, implement and verify a Dynamic Host Configuration Protocol (DHCP) router operation according to vendor specifications 3.2 Configure and verify internet protocol version 6 (IPv6) addressing according to vendor specifications 3.3 Configure and verify the operation of network address translation (NAT) requirements according to installation plan specifications
4. Secure a network using router services	4.1 Determine purpose and types of access control lists (ACLs) according to installation plan specifications 4.2 Configure and apply ACLs according to network filtering requirements 4.3 Secure access to the network router according to installation plan specifications
5. Troubleshoot medium enterprise WAN links	5.1 Test WAN implementation links and align to installation plan service expectations 5.2 Respond and rectify identified WAN implementation issues 5.3 Document test results and rectification methods according to installation plan specifications 5.4 Seek and respond to feedback from required personnel

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

SKILL	DESCRIPTION
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Numeracy	Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network
Oral communication	Uses listening and questioning techniques to confirm requirements, articulate complex concepts and matters using required terminology to explain technical and business-related matters with required personnel
Reading	Interprets and analyses technical information to determine requirements according to organisational needs
Writing	Prepares workplace documentation which incorporates an evaluation of technical information and specialised language in a format and style for a specific audience
Planning and organising	Uses a combination of formal, logical planning processes and an increasingly intuitive knowledge of context to plan, prioritise and monitor own work
Problem solving	- Demonstrates effective decision making for relatively complex situations and takes a range of factors into consideration - Uses intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues and lateral thinking processes to generate possible solutions
Self-management	- Demonstrates knowledge of the implications of legal and regulatory responsibilities related to own work - Demonstrates knowledge of how strategic and operational applications are used or could be used to achieve work goals
Technology	- Demonstrates knowledge of the ways in which digital systems and tools are used or could be used to achieve work goals - Uses digital technologies and systems safely and securely when implementing and monitoring a system, with a growing awareness of the permanence and transparency of all activities

Unit Mapping Information

Supersedes and is equivalent to ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network.

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 ICTNWK541 Configure, verify and troubleshoot WAN links and IP services

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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:

- install, configure and test Wide Area Networks (WAN) links on at least two occasions.

In the course of the above, the candidate must:

- plan and prepare for WAN link installation
- document finalised solutions for WAN links
- secure access to network router through access control lists.

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:

- industry standard operation and configuration of internet protocol version 6 (IPv6)
- industry standard router setup and operations, including:
 - ACLs
 - router command line interface (CLI) configuration
 - router debug commands
- industry standard problems and solutions with WAN link installations.

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.

- a site where network installation may be conducted
- small enterprise routers and switches
- network's design documentation

- equipment specifications
- hardware and software required to install and operate small enterprise branch networks
- end user device
- policies and procedures pertaining to the installation and operation of a network.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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