



Australian Government

ICTNWK543 Install, operate and troubleshoot medium enterprise switches

Release: 1

ICTNWK543 Install, operate and troubleshoot medium enterprise switches

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 tools, equipment, software and protocols to install, operate and troubleshoot medium enterprise switches and routers.

It applies to individuals working as help desk technicians, network support technicians or in similar 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 switch and router	1.1 Identify and analyse existing switch and router performance against manufacturer expectations and organisational requirements 1.2 Review existing network design documentation and determine alignment to manufacturer expectations and organisational requirements 1.3 Determine network element additions and upgrades according to organisational requirements 1.4 Develop and document installation plan and submit to required personnel 1.5 Obtain installation plan sign off from required personnel
2. Configure basic switch	2.1 Determine network segmentation, traffic management and

ELEMENT	PERFORMANCE CRITERIA
operation	switching requirements according to installation plan specifications 2.2 Perform, save and verify initial switch configuration tasks according to installation plan specifications 2.3 Select required media, cables, ports and connectors and connect switches to network devices and hosts 2.4 Perform, save and verify initial switch configuration tasks and upgrade switch firmware 2.5 Save and back up switch configuration files and implement required switch security
3. Configure and verify advanced switching functions	3.1 Determine required switching technologies according to switch specifications 3.2 Configure and verify virtual local area networks (VLANs) 3.3 Configure and verify required trunks between switches and inter-VLAN routing 3.4 Configure and verify required spanning tree protocol (STP) operations
4. Troubleshoot medium enterprise switches	4.1 Troubleshoot device configuration and network connectivity according to switch specifications 4.2 Identify and resolve switched network issues according to technical requirements 4.3 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
Learning	- Identifies implications of legal and regulatory responsibilities related to own work - Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals and have strategic and operational applications
Numeracy	Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network
Reading	Gathers, interprets and analyses technical and regulatory information to determine requirements according to client needs
Writing	Uses factual information and industry-related terminology to convey

SKILL	DESCRIPTION
	information to internal and external personnel on technical, operational and business-related matters
Planning and organising	• Uses a combination of formal, logical planning processes to plan, prioritise and monitor own work and coordinate processes in liaison with others and within different contexts
Problem solving	• Makes decisions in relatively complex situations, taking a range of factors into consideration • May use intuition to identify general problem areas from complex issues, switching to analytical processes to clarify goals and key issues and uses lateral thinking processes to generate possible solutions
Technology	• 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 ICTNWK508 Install, operate and troubleshoot medium enterprise switches.

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 ICTNWK543 Install, operate and troubleshoot medium enterprise switches

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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:

- prepare and install at least two medium enterprise switches
- configure and test network elements on at least two occasions.

In the course of the above, the candidate must:

- apply network topologies, protocols and security issues
- apply solutions and troubleshoot defined network problems.

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:

- switches and their operation
- industry standard installation requirements of switches, including:
 - debug commands
 - routing between virtual local area networks (VLANs)
 - spanning tree protocol (STP)
 - switch command line interface (CLI) commands
 - switch security, including:
 - port deactivation
 - port security
 - secure shell (SSH)
 - advanced switching technologies
 - common network switching issues
- industry standard network and related equipment.

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 network installation may be conducted
- enterprise switches and operating systems
- equipment specifications
- hardware and software required to install and operate medium enterprise switches
- end user device
- policies and procedures pertaining to the installation and operation of enterprise switches.

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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