



Australian Government

ICTTEN513 Install, configure and test a local area network switch

Release: 1

ICTTEN513 Install, configure and test a local area network switch

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to undertake local area network (LAN) switch installation, configuration and testing in field work. It also applies to switching protocols and diagnostics required for integrating new and converging functionalities to the network.

It applies to individuals, employed by telecommunications companies and information communications technology (ICT) networking provisioning companies, who carry out installation, maintenance and upgrade of ICT networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Telecommunications – Telecommunications Networks Engineering

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 the network switch	1.1 Prepare for installation in line with site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures 1.2 Notify customer to arrange site access 1.3 Document the topology of the LAN 1.4 Obtain current and future network capacity predictions according to current and future business requirements from the appropriate

ELEMENT	PERFORMANCE CRITERIA
	person 1.5 Specify the number and type of switch required, with reference to future network requirements 1.6 Specify requirements for network management and security, as prescribed by organisational policy 1.7 Select the switch and switch operating system software version with appropriate features according to required specifications
2. Install and configure the network switch	2.1 Assemble, rack mount and connect switch and peripherals according to manufacturer's requirements 2.2 Connect user to access points using cable that meets appropriate standard 2.3 Establish a valid network connection with other network devices 2.4 Configure a network internet protocol (IP) address for the switch 2.5 Install or configure simple network management protocol (SNMP) agent software, on each switch, to collect network traffic data for the management information base (MIB) from that segment of the network and relay it to the management console 2.6 Install and configure SNMP management console software on a computer designated to be the network manager's main console, to collect network traffic data from the switch acting as agents 2.7 Manually configure user access ports of the switch for speed and full or half-duplex operation
3. Test the network switch and reconfigure the network	3.1 Test the switch and other network devices according to manufacturer's requirements and organisational guidelines 3.2 Test to ensure connectivity across the network 3.3 Modify the network to verify SNMP management software 3.4 Make adjustments to the network, depending on test and troubleshooting results
4. Complete documentation and clean worksite	4.1 Tabulate test results and complete all user reports 4.2 Complete report and notify client of network status 4.3 Clean up and restore worksite to client's satisfaction 4.4 Secure sign-off from appropriate person

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	1.6, 1.7, 2.1, 2.2, 3.1	Organises, evaluates and critiques information from a range of policy, technical and instructional material
Writing	1.3, 4.1, 4.2	Prepares clear and concise workplace documentation incorporating technical language to communicate complex information clearly and effectively
Oral Communication	1.2, 1.4, 4.2	Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding
Numeracy	2.7	Uses mathematical formulas and calculations to take test measurements, interpret results and evaluate performance and interoperability of network
Navigate the world of work	1.1, 4.3	Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work
Interact with others	4.2-4.4	Selects and uses appropriate conventions and protocols when communicating with customers
Get the work done	1.5, 1.7, 2.1-2.4, 2.7, 3.1-3.4	- Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications - Selects and uses digital technologies and systems to achieve work goals and enhance work processes - Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues - Uses analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status

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ICTTEN513 Install, configure and test a local area network switch	ICTTEN5200A Install, configure and test a local area network switch	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 ICTTEN513 Install, configure and test a local area network switch

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Performance Evidence

Evidence of ability to:

- plan and prepare for the local area network (LAN) switch installation task
- select a LAN switch to meet client business specifications
- install switches without the network losing connectivity or failing
- install and test switch that ensures interoperability within the network
- use a range of switch configurations
- apply solutions to a variety of switch-related problems
- report on status of completed installation
- seek sign-off from customer.

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 advantages and disadvantages of switches over hubs
- identify and evaluate the impact of pertinent sections of the Australian Computer Society Code of Ethics in relation to network switches
- describe common network cable types and connectors
- summarise common network topologies
- explain differences between standard and intelligent (i.e. configurable) switches, and between switches and hubs
- outline the importance of client documentation prepared when installing networks
- explain how to provide the network with redundant paths for reliability and how routers and switches manage these paths.

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 should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where switch installation can be conducted
- field measurement equipment currently used in industry
- relevant switch specifications, technical requirements for a network, switch, cabling, networked (LAN) computers, workstations, servers and a wide area network (WAN) service point of presence.

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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