



Australian Government

ICTTEN525 Install, configure and test local area network switches

Release: 1

ICTTEN525 Install, configure and test local area network switches

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to conduct 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 network 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 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 LAN switches	1.1 Obtain work details, change management procedures and scope from relevant personnel and arrange for site access in compliance with required security arrangements, legislation, codes, regulations and standards 1.2 Document LAN topology according to organisational requirements 1.3 Obtain current and future network capacity predictions from relevant personnel 1.4 Specify the number and type of switch required, with reference to

ELEMENT	PERFORMANCE CRITERIA
	future network requirements 1.5 Specify requirements for network management and security according to organisational requirements 1.6 Select the switch and switch operating system software version with required features according to required specifications
2. Install and configure LAN switches	2.1 Assemble, rack mount and connect switch and peripherals according to manufacturer requirements 2.2 Connect user to access points using cable that meets required standard 2.3 Establish a valid network connection with other network devices 2.4 Configure the network internet protocol (IP) address for the switch 2.5 Install and configure simple network management protocol (SNMP) agent software according to network requirements 2.6 Collect network traffic data for the management information base (MIB) according to network requirements 2.7 Install and configure SNMP management console software on a computer designated to be the network manager's main console 2.8 Manually configure user access ports of the switch for speed and full or half-duplex operation
3. Test and reconfigure LAN switches	3.1 Test the switch and other network devices according to manufacturer requirements and organisational guidelines 3.2 Test to confirm 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 requirements 4.4 Secure sign-off from relevant personnel

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	Uses mathematical formulas and calculations to take test measurements, interpret results and evaluate performance and

SKILL	DESCRIPTION
	interoperability of network
Oral communication	• Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding
Reading	• Organises, evaluates and critiques information from a range of policy, technical and instructional material
Writing	• Prepares workplace documentation, incorporating technical language to communicate complex information clearly and effectively
Teamwork	• Selects and uses required conventions and protocols when communicating with customers
Planning and organising	• Uses a combination of formal, logical planning processes high-impact activities with strategic implications
Problem solving	• Uses analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions
Self-management	• Takes personal responsibility for adherence to legal and regulatory responsibilities required to own work
Technology	• Selects and uses digital technologies and systems to achieve work goals and enhance work processes

Unit Mapping Information

Supersedes and is equivalent to ICTTEN513 Install, configure and test a local area network switch.

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 ICTTEN525 Install, configure and test local area network 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:

- plan and prepare for at least two local area network (LAN) switch installations.

In the course of the above, the candidate must:

- select LAN switches to meet client business specifications
- install switches without the network losing connectivity or failing outside of an agreed change window
- install and test switch that confirms interoperability within the network
- use switch configurations
- report on status of completed installation
- seek sign-off from relevant personnel.

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:

- required legislation, codes, company work practices, regulations and standards, workplace health and safety (WHS) requirements for scoped work
- advantages and disadvantages of LAN switches over hubs
- impact of required sections of the Australian Computer Society Code of Ethics on network switches
- network cable types and connectors
- LAN topologies
- differences between standard and intelligent switches, and between switches and hubs
- importance of client documentation prepared when installing networks
- providing the network with redundant paths for reliability and how routers and switches manage these paths.

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 switch installation can be conducted
- field measurement equipment currently used in industry
- required 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.

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