



Australian Government

ICTNWK433 Install backbone technologies in a local area network

Release: 1

ICTNWK433 Install backbone technologies in a local area network

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 install core layer (backbone) connectivity in a local area network (LAN) for applications between floors in a multi-storey and separate buildings.

It applies to individuals who apply specialised technical knowledge and a systematic approach to installing Information and Communications Technology (ICT) technologies and backbone connectivity in a LAN.

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. Design and prepare to install network requirements	1.1 Identify network requirements according to technical and organisational and requirements 1.2 Design network structure according to organisational requirements 1.3 Design network addressing system with subnet and host identities (IP addressing) and virtual LANs (VLANs) 1.4 Identify and document resource requirements according to organisational policies, procedures and task requirements
2. Install and configure network backbone	2.1 Install and configure networking switches and routers according to task requirements

ELEMENT	PERFORMANCE CRITERIA
	2.2 Install network protocol suites according to task requirements 2.3 Configure host and workstation network access according to task requirements
3. Test and validate network	3.1 Test network connectivity and ensure hosts on segments and VLANs operation parameters are met 3.2 Implement adjustments to systems structure according to task requirements 3.3 Document and validate network performance according to organisational policies and procedures

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	Interprets numerical information to calculate and interpret network connectivity
Oral communication	Uses active listening, observational and questioning techniques to confirm information and using technical language appropriate to audience and environment
Reading	Gathers, interprets and analyses current network design specifications and identifies relevant and key information
Writing	Prepares required documentation detailing network performance using cohesive and relevant language for intended audience
Planning and organising	Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to prioritise tasks and contingency arrangements
Problem solving	Demonstrates an understanding of purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks
Self-management	Initiates standard procedures when responding to familiar problems within immediate context
Technology	Uses mobile communication tools and specialised software to ensure that geographically distributed team members remain connected in virtual environments

Unit Mapping Information

Supersedes and is equivalent to ICTNWK418 Implement backbone technologies in a local area 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 ICTNWK433 Install backbone technologies in a local area network

Modification History

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

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- install and configure backbone connectivity in a LAN on at least one occasion.
- build and test one asynchronous transfer mode (ATM) local area network (LAN) that provides the required services at the required communication standards
- document resource requirements and network performance.

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:

- current and emerging industry standard practice associated with:
 - bandwidth limitations, measuring and testing
 - LAN and wide area network (WAN) network topologies (three-layer LAN hierarchy: core distribution and access)
 - MAC addresses, network layer protocols
 - open systems interconnect (OSI) layer modelling
 - routers virtual LANs
 - network interface cards (NICs) and switches, including:
 - fast Ethernet
 - gigabit and 10-gigabit Ethernet store-and-forward
 - fast-forward
 - fragment-free
 - internetworking protocol suites, including:
 - TCP/IP, IPX, DECnet, AppleTalk, IPv6.

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 at which installation of backbone and ICT activities may be carried out
- required web and technical applications
- documented installation guidelines on vendor products
- local area network infrastructure
- switches with various interfaces
- network administration tools.

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

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>