



Australian Government

ICTNWK542 Install, operate and troubleshoot medium enterprise routers

Release: 1

ICTNWK542 Install, operate and troubleshoot medium enterprise routers

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 routers.

It applies to individuals working as network technicians and network administrators or in other network support 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 router	1.1 Identify and analyse existing router performance against organisational requirements 1.2 Review existing network design documentation and determine alignment to organisational requirements 1.3 Determine network element additions and upgrades according to organisational requirements 1.4 Develop and document installation plan and submit document to required personnel 1.5 Obtain installation plan sign off from required personnel
2. Configure basic router operation	2.1 Determine basic routing requirements and operating parameters according to installation plan specifications

ELEMENT	PERFORMANCE CRITERIA
	2.2 Select required media, cables, ports, connectors and connect routers to network devices and hosts according to installation plan specifications 2.3 Set basic parameters and router firmware according to installation plan specifications 2.4 Save and back up router configuration files according to installation plan specifications 2.5 Implement required router security and configure static and default routes according to installation plan specifications
3. Configure dynamic classless routing protocols	3.1 Calculate and apply required classless IP addressing scheme using variable length subnet mapping (VLSM) to a local area network (LAN) and a wide area network (WAN) environment according to router specifications 3.2 Configure and verify required classless routing protocols according to router specifications
4. Apply troubleshooting processes	4.1 Troubleshoot device configuration and network connectivity according to network specifications 4.2 Identify and correct problems with IP addressing and host configurations according to network specifications 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	Reflects on the ways in which digital systems and tools are, 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 the performance and interoperability of the network - Adds, subtracts, multiples and divides basic and complex numbers
Reading	Gathers, interprets and analyses technical and regulatory information, to determine the requirements according to client needs
Writing	Uses factual information and industry-related terminology, to convey information to internal and external personnel on technical, operational and business-related matters
Planning and	Uses a combination of formal, logical planning processes, intuitive

SKILL	DESCRIPTION
organising	knowledge of context to plan, prioritise and monitor own work and coordinate processes, in liaison with others
Problem solving	- Identifies the implications of legal and regulatory responsibilities related to own work - Demonstrates a use of intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues and uses lateral thinking processes to generate possible solutions
Self-management	Makes decisions in relatively complex situations, taking a range of factors into consideration
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 ICTNWK507 Install, operate and troubleshoot medium enterprise routers.

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 ICTNWK542 Install, operate and troubleshoot medium enterprise routers

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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:

- configure, install, manage and troubleshoot on medium enterprise routers on at least two occasions.

In the course of the above, the candidate must:

- apply network topologies, routing and security protocols.

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 routing concepts for medium enterprise network switches and routers
- classless routing protocols, including:
 - open shortest path first (OSPF)
 - routing information protocol (RIPv2)
- debug commands
- internet protocol version 4 (IPv4)
- purpose and basic operation of protocols in the open system interconnection (OSI) and transmission control protocol and internet protocol (TCP/IP) models
- router command line interface (CLI) configuration.

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

- 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 routers.

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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