



Australian Government

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

Release: 1

ICTNWK507 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 1.0.

Application

This unit describes the skills and knowledge required to use the appropriate tools, equipment, software and protocols to install, operate and troubleshoot, medium enterprise routers.

It applies to individuals working as network technicians, network administrator and network support.

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 a medium enterprise router	1.1 Prepare for given work, according to legislation, workplace health and safety (WHS), codes, regulations and standards 1.2 Arrange the access to the network facility, according to the required procedures 1.3 Review the existing network design documentation to ensure that it is current and complete 1.4 Select the network elements required to be installed, to meet the technical requirements 1.5 Contact vendors and service suppliers to obtain the specifications, and determine the availability of the identified

ELEMENT	PERFORMANCE CRITERIA
	components 1.6 Develop plans, with prioritised tasks and contingency arrangements, for the installation of components with minimum disruptions to the client 1.7 Liaise with the appropriate person to obtain approval for the plans, including security and timing
2. Configure the basic router operation	2.1 Determine the basic routing requirements 2.2 Determine the router operating parameters 2.3 Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts 2.4 Access and use the router to set basic parameters 2.5 Upgrade the firmware on a router 2.6 Save and back up the router configuration files 2.7 Implement basic router security 2.8 Configure the static and default routes
3. Configure, and verify, the dynamic classless routing protocols	3.1 Determine the appropriate classless addressing scheme, using variable length subnet mapping (VLSM) and summarisation to satisfy addressing requirements in a local area network (LAN) or a wide area network (WAN) environment 3.2 Calculate and apply an addressing scheme, including a VLSM internet protocol (IP) addressing design, to a network 3.3 Configure and verify, the classless routing protocols
4. Apply sound troubleshooting processes to determine network connectivity	4.1 Troubleshoot the device configuration and network connectivity using basic utilities 4.2 Identify and correct, common problems associated with IP addressing and host configurations 4.3 Perform basic troubleshooting principles to verify the network's operation

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance	Description
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	Criteria	
Reading	1.2, 1.3	Gathers, interprets and analyses technical and regulatory information, to determine the requirements according to client needs
Writing	1.5	Uses factual information and industry-related terminology, to convey information to internal and external personnel on technical, operational and business-related matters
Oral Communication	1.5, 1.7, 2.1, 2.2	- Uses specific and relevant language to clearly describe and explain, a range of technical, operational and business-related matters, with internal and external personnel - Uses listening and questioning skills to confirm understanding for the requirements, participates in a verbal exchange of ideas/solutions, and uses appropriate, detailed and clear language to address key personnel, and to disseminate information
Numeracy	3.2, 3.3	Analyses numerical information to take measurements, interpret results and evaluate the performance, and interoperability, of the network
Navigate the world of work	1.1	Appreciates the implications of legal and regulatory responsibilities related to own work
Get the work done	1.1, 1.2, 1.4, 1.6, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3	- Reflects on the ways in which digital systems and tools are, or could be, used to achieve work goals, and begins to recognise strategic and operational applications - 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 - Uses a combination of formal, logical planning processes, and an increasingly intuitive understanding of context to plan, prioritise and monitor own work, and coordinate processes, in liaison with others - Makes decisions in relatively complex situations, taking a range of factors into consideration - When dealing with complex issues, may use 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
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK507 Install, operate and troubleshoot medium enterprise routers	ICANWK507A Install, operate and troubleshoot medium enterprise routers	Updated to meet Standards for Training Packages. Minor changes to the wording of Element 4, and some Performance Criteria for clarity.	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 ICTNWK507 Install, operate and troubleshoot medium enterprise routers

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Performance Evidence

Evidence of the ability to:

- plan and prepare for the installation of an enterprise router
- design a classless internet protocol (IP) addressing scheme, to suit requirements
- install, configure and test the network elements, to ensure interoperability within the network
- apply network topologies, routing and security protocols
- apply solutions, and troubleshoot any defined network problems.

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:

- explain the basic routing concepts for small enterprise network switches and routers
- outline classless routing protocols, including:
 - enhanced interior gateway routing protocol (EIGRP)
 - open shortest path first (OSPF)
 - routing information protocol (RIPv2)
- summarise debug commands
- explain internet protocol version 4 (IPv4)
- summarise the purpose, and basic operation, of protocols in the open system interconnection (OSI) and transmission control protocol, or internet protocol (TCP/IP), models
- explain the router calling line identification (CLI) configuration.

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 must be typical of those experienced in the network industry, and include access to:

- a site where network installation may be conducted
- enterprise routers and operating systems
- hardware and software
- the organisational guidelines
- computers.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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