



Australian Government

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

Release: 1

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

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 plan, manage and implement troubleshooting and monitoring strategies to ensure reliability and performance on advanced integrated internet protocol (IP) networks.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as advanced support engineers, network support specialists and ICT network engineers.

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. Plan the strategies for troubleshooting and monitoring the performance of advanced integrated IP networks	1.1 Develop a plan to monitor and manage the IP network to optimise its performance and reliability 1.2 Plan the isolation of network segments for troubleshooting procedures 1.3 Plan the testing sequences and scenarios of network infrastructure 1.4 Select appropriate network testing and monitoring tools, and software application to suit the specific network troubleshooting and monitoring sequence

ELEMENT	PERFORMANCE CRITERIA
2. Manage and monitor troubleshooting strategies for complex enterprise networks	2.1 Manage and monitor strategies for network monitoring structure 2.2 Produce a routine internetwork operating system (IOS) device maintenance plan to include monitoring of routing protocols and router configurations 2.3 Isolate sub-optimal internetwork operations at the appropriate open systems interconnection (OSI) model layer 2.4 Produce a plan for troubleshooting and monitoring security issues related to IOS services for mission critical applications 2.5 Produce a plan for troubleshooting and monitoring internet protocol version 6 (IPv6) and version 4 (IPv4) interoperability
3. Implement test plans for advanced network solutions	3.1 Test switch-to-switch connectivity, access ports and loop prevention for the virtual local area network (VLAN) based solution 3.2 Test private VLANs 3.3 Test switch virtual interfaces (SVI) 3.4 Test switch support of advanced services 3.5 Troubleshoot switch configuration

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	1.2-1.4, 2.2, 2.4, 2.5	Organises, evaluates and critiques ideas and information from a range of complex texts
Writing	1.1, 2.2, 2.4, 2.5	Develops a broad range of material, including troubleshooting plans for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations
Numeracy	3.1-3.4	Interprets numerical data when testing plans for advanced network solutions, including taking measurements to evaluate performance and interoperability of network
Get the	1.2-1.4, 2.1-	Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital

work done	2.5, 3.1-3.4	world and uses these to troubleshoot and understand the uses and potential of new technology • Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies • When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to generate possible solutions depending on differing operational contingencies, risk situations and environments
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks	ICANWK612A Plan and manage troubleshooting advanced integrated IP networks	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 ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

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Performance Evidence

Evidence of the ability to:

- plan and monitor internet protocol (IP) networks for performance and reliability
- evaluate, design and implement a troubleshooting structured plan
- use network testing and monitoring tools
- produce a maintenance plan for monitoring routing protocols and configurations
- implement tests of advanced network solutions.

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:

- summarise advanced network solutions
- explain configuration, verification and troubleshoot procedures to undertake:
 - router operation and routing
 - virtual local area networks (VLANs) switching and inter-switching communications
- outline deployment schemes
- explain iDevice operating system (iOS) and IP networking models
- explain IOS services
- explain IP network topologies, architectures and elements
- identify and describe network testing and monitoring tools
- outline networking standards and protocols
- summarise threat mitigation strategies
- outline VLAN technologies.

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 networking industry, and include access to:

- a site where complex network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- local area network (LAN) and wide area network (WAN) systems, including voice and video hardware and software.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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