



**Australian Government**

# **ICTNWK621 Configure network devices for a secure network infrastructure**

**Release: 1**

# ICTNWK621 Configure network devices for a secure network infrastructure

## 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 software tools, equipment and protocols to configure network devices in the design of the infrastructure of a secure network.

It applies to individuals with advanced Information and Communications Technology (ICT) expertise, who adapt router and switch operating system capabilities to mitigate attacks.

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. Implement layer two security                             | 1.1 Configure router operating system (OS) commands and mitigate layer two attacks<br>1.2 Implement identity-based networking services (IBNS) and provide layer two security<br>1.3 Implement required identity management and use access control system (ACS) |
| 2. Configure router OS intrusion prevention system (OS-IPS) | 2.1 Evaluate advanced capabilities of router OS-IPS firewall feature set and include event action processing (EAP)<br>2.2 Configure and verify IPS features, identify threats and dynamically block from network                                               |

| ELEMENT                                                                          | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                  | <p>2.3 Maintain, update and tune required IPS signatures</p> <p>2.4 Configure and verify context-based access control (CBAC) and network address translation (NAT) and dynamically mitigate identified network threats</p> <p>2.5 Configure and verify zone-based firewall (ZFW), advanced application inspections and uniform resource locator (URL) filtering</p>                                                                                                                                                                                                                      |
| 3. Configure virtual private networks (VPNs)                                     | <p>3.1 Analyse and evaluate internet protocol security (IPSec) and generic routing encapsulation (IPSec/GRE) features and functionality</p> <p>3.2 Configure secure connectivity for site-to-site VPN using certificate authorities</p> <p>3.3 Analyse required dynamic multipoint VPN (DMVPN) features and capabilities</p> <p>3.4 Configure and verify secure connectivity for site-to-site VPN operations</p>                                                                                                                                                                         |
| 4. Provide secure connectivity for site-to-site and remote access communications | <p>4.1 Provide highly secure network access with secure socket layer (SSL) VPN to deliver remote access connectivity features and benefits</p> <p>4.2 Evaluate EasyVPN benefits and configure EasyVPN server with dynamic virtual tunnel interface (DVTI) to create a virtual access interface on the virtual tunnel interface</p> <p>4.3 Configure and verify EasyVPN remote to establish a site-to-site connection using both router and VPN software clients</p> <p>4.4 Implement group-encrypted transport (GET) VPN features to simplify the provisioning and management of VPN</p> |
| 5. Implement network foundation protection (NFP)                                 | <p>5.1 Evaluate NFP infrastructure protection features and document outcomes</p> <p>5.2 Secure management plane, data plane and control plane and use OS features of the router</p> <p>5.3 Determine functionality against technical specifications</p> <p>5.4 Report on evaluation outcomes and obtain sign off from required personnel</p>                                                                                                                                                                                                                                             |

## 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                | <ul style="list-style-type: none"><li>• Demonstrates a sophisticated knowledge of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology</li><li>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking</li></ul> |
| Numeracy                | <ul style="list-style-type: none"><li>• Selects from and flexibly applies, a wide range of highly developed mathematical and problem-solving strategies and techniques in a broad range of contexts</li></ul>                                                                                                                                                                    |
| Oral communication      | <ul style="list-style-type: none"><li>• Articulates requirements and responsibilities clearly and distinctively, using industry standard technical language intended for audience and environment</li></ul>                                                                                                                                                                      |
| Reading                 | <ul style="list-style-type: none"><li>• Organises, evaluates and critiques ideas and information from a range of complex texts</li><li>• Draws on a broad range of strategies to build and maintain knowledge throughout complex texts</li></ul>                                                                                                                                 |
| Writing                 | <ul style="list-style-type: none"><li>• Generates complex written texts, demonstrating control over a broad range of writing styles and purposes</li><li>• Writes and edits computer code and technical data ensuring correct syntax and accuracy</li></ul>                                                                                                                      |
| Planning and organising | <ul style="list-style-type: none"><li>• Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands</li></ul>                                                                                                                                                                               |
| Problem solving         | <ul style="list-style-type: none"><li>• Uses a broad range of strategies to store, access and organise virtual information recognising that design choices will influence what information is retrieved and how it may be interpreted and used</li></ul>                                                                                                                         |
| Self-management         | <ul style="list-style-type: none"><li>• Takes full responsibility for identifying and considering required organisational protocols and requirements</li></ul>                                                                                                                                                                                                                   |

## Unit Mapping Information

Supersedes and is equivalent to ICTNWK608 Configure network devices for a secure network infrastructure.

## 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 ICTNWK621 Configure network devices for a secure network infrastructure

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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:

- design, implement and verify network security systems using layer two and layer three devices.

In the course of the above, the candidate must:

- document evaluation outcomes.

## 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:

- configuration, verification and troubleshooting procedures to undertake:
  - virtual local area network (VLAN) switching
  - inter-switching communications
  - setting up and securing firewalls
  - tunnelling protocols
- key features of deployment schemes
- iDevice operating system (iOS) and internet protocol (IP) networking models
- local area network (LAN) and wide area network (WAN) implementations
- network address translation (NAT) concepts and configuration, topologies, architectures and elements, networking standards and protocols
- procedures for configuring, verifying and troubleshooting router operations and routing
- secure connectivity and remote access communications, security protocols, such as secure socket layer (SSL)
- key features of VPN technologies.

## 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 or prototype where network security may be evaluated and tightened
- organisational guidelines, procedures and policies applicable to configuring network devices securely
- required hardware and software LAN and WLAN internetwork technologies and security technologies.

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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