



Australian Government

ICTNWK540 Design, build and test network servers

Release: 1

ICTNWK540 Design, build and test network servers

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 design, install and test servers in complex network environments.

It applies to individuals who are employed in network or systems engineering roles or similar and are required to design and build network servers in a complex computing environment of medium-to-large organisations.

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 and design network servers	1.1 Identify network server performance and data migration specifications according to organisational requirements 1.2 Design and document configuration of network services and server applications according to organisational requirements 1.3 Prototype design and update documentation 1.4 Develop test plan and confirm alignment according to organisational requirements 1.5 Submit documented plan and obtain sign off from required personnel
2. Prepare for network server installation	2.1 Identify safety hazards and implement risk control measures according to network design specifications

ELEMENT	PERFORMANCE CRITERIA
	2.2 Determine network and user disruptions and communicate to required personnel 2.3 Back up local data according to network design specifications
3. Build and configure servers	3.1 Install network operating system according to design specifications 3.2 Install additional tools and required third-party software applications according to network server requirements 3.3 Implement security design and patch operating system and application according to network design specifications 3.4 Configure network services, restore local data and provide automatic updates according to network design specifications 3.5 Implement security design to prevent unauthorised access to system according to network design specifications 3.6 Reconnect and reconfigure connectivity devices according to network server requirements 3.7 Configure update services to provide automatic updates for operating system and applications 3.8 Restore local data to new server 3.9 Implement backup and recovery methods and enable restoration capability in the event of a disaster
4. Test and reconfigure network servers	4.1 Test server and benchmark against network design specifications and document outcomes 4.2 Identify and remediate identified server operating issues according to network design specifications 4.3 Test and validate changes and additions against organisational requirements
5. Complete and document network design and installation process	5.1 Document server configuration, server status and operational changes 5.2 Complete required documentation report and notification of server status 5.3 Clean up and restore worksite according to organisational requirements

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	• Demonstrates knowledge of ways in which digital systems and tools are used or could be used to achieve work goals and begins to recognise strategic and operational applications
Numeracy	• Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network • Uses mathematical formulas and calculations to estimate and plan project costs within a defined budget
Reading	• Interprets organisational procedures, manuals and specifications to determine requirements
Writing	• Prepares workplace documentation that incorporates an evaluation of technical information using specialised language in a format and style required for a specific audience
Teamwork	• Determines the required form, channel and mode of communication for a specific purpose, according to own role
Planning and organising	• Uses a combination of formal, logical planning processes and an increasingly intuitive knowledge of context to plan, prioritise and monitor own work
Problem solving	• Uses formal and informal processes to monitor implementation of solutions and reflect on outcomes • Demonstrates effective decision making in relatively complex situations
Self-management	• Demonstrates knowledge of the nature and purpose of own role and associated responsibilities and how it contributes to the work of others • Demonstrates and articulates knowledge of legislation and regulations required to own rights and responsibilities
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 ICTNWK505 Design, build and test a network server and ICTTEN514 Install, configure and test a server.

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 ICTNWK540 Design, build and test network servers

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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:

- produce a design report for at least one server with complex user and network service requirements
- prepare and install a network server on at least one occasion.

In the course of the above, the candidate must:

- document work plans and processes
- configure a wide range of server network and security services, including:
 - domain name system (DNS)
 - dynamic host configuration protocol (DHCP)
 - web and proxy mail
 - file transfer protocol (FTP)
 - firewall.

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:

- features of industry standard network operating systems (NOS)
- industry standard server applications compatibility issues and resolution procedures
- industry standard network service configuration, including:
 - domain name system (DNS)
 - dynamic host configuration protocol (DHCP)
 - file transfer protocol (FTP)
 - mail
 - network time protocol (NTP)

- proxy
- server messages block (SMB)
- web
- industry standard network service management including start, stop, restart and start on boot
- network service security features, including server firewall configuration
- troubleshooting tools and techniques including network diagnostic utilities
- industry standard operating system installation and operation issues, including:
 - installation media
 - boot process and diagnosing boot failures
 - operating system rescue environment
 - operating system help and support utilities
 - performance monitoring tools and tuning options
 - compatibility issues and resolution procedures
 - high availability options for servers
 - file and print management
- data security and storage measures required on networked server, including:
 - user authentication and directory services
 - best practice procedures for implementing backup and recovery
 - error and event logging and reporting
 - storage options, including file systems and disk partitioning schemes.

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 server installation may be conducted
- server specifications
- industry standard hardware
- networked (LAN) computers
- server diagnostic software
- switching equipment
- organisational deliverables relating to building network servers
- wide area network (WAN) service point of presence
- end user device.

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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