



Australian Government

ICTNWK505 Design, build and test a network server

Release: 1

ICTNWK505 Design, build and test a network server

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 design, install and test a server in a complex network environment.

It applies to individuals who are employed in network or systems engineering roles, such as network engineers who 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 to meet business requirements	1.1 Consult with client and key stakeholders to identify requirements 1.2 Assess business problems, opportunities, scope, objectives and budget, confirming details with appropriate person 1.3 Analyse and document data migration requirements 1.4 Review requirements to identify network server specifications 1.5 Produce detailed documentation for the design and configuration of the network services, server applications, security and redundancy

ELEMENT	PERFORMANCE CRITERIA
	1.6 Prototype design and update documentation as necessary 1.7 Produce installation checklists as part of the quality assurance process 1.8 Develop the test plan to ensure that the system meets client requirements, performance standards and quality expectations 1.9 Obtain client sign-off for the design report
2. Prepare for network server installation	2.1 Prepare for work according to site specific safety requirements and enterprise workplace health and safety (WHS) processes and procedures 2.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel 2.3 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite 2.4 Back up local data in preparation for installation
3. Build and configure the servers according to design	3.1 Install network operating system to design specifications using installation checklists 3.2 Install additional tools or third-party software applications as required by the design 3.3 Patch the operating system and applications to ensure maximum security and reliability 3.4 Configure network services and applications 3.5 Implement security design to prevent unauthorised access to system 3.6 Reconnect and reconfigure connectivity devices 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 to enable restoration capability in the event of a disaster
4. Test and reconfigure network servers	4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes 4.2 Analyse the error report and make changes as required 4.3 Use troubleshooting tools and techniques to diagnose and correct server problems 4.4 Test required changes or additions

ELEMENT	PERFORMANCE CRITERIA
	4.5 Validate changes or additions against specifications
5. Complete and document network design and installation	5.1 Make and document server configuration and operational changes 5.2 Complete client report and notify of server status 5.3 Clean up and restore worksite to client's satisfaction 5.4 Secure sign-off from appropriate person

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	1.4, 3.1, 3.2, 4.1, 4.2, 4.5	Gathers and interprets enterprise procedures, manuals and specifications to determine requirements
Writing	1.3, 1.5, 1.6, 4.1, 5.1, 5.2	Prepares workplace documentation that incorporates an evaluation of technical information and specialised language in a format and style appropriate for a specific audience
Oral Communication	1.1, 1.2, 2.2, 2.3, 5.2	- Uses active listening, observational and questioning techniques in order to identify information and confirm, clarify or revise understanding - Articulates requirements clearly and distinctively, using technical language appropriate to audience and environment
Numeracy	1.2, 4.2	- 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
Navigate the world of work	2.1, 2.2, 5.3	- Understands the nature and purpose of own role and associated responsibilities, and how it contributes to the work of others in the immediate work context - Keeps up to date with current legislation and

		regulations relevant to own rights and responsibilities, and considers the implications of these when planning and undertaking work
Interact with others	1.9, 5.4	Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role
Get the work done	1.2, 1.3, 1.7, 1.8, 2.4, 3.1- 3.9, 4.1-4.5, 5.1	- Reflects on the 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 - 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 - Uses formal and informal processes to monitor implementation of solutions and reflect on outcomes - Makes decisions in relatively complex situations, taking a range of factors into consideration

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTNWK505 Design, build and test a network server	ICANWK505A Design, build and test a network server	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 ICTNWK505 Design, build and test a network server

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Performance Evidence

Evidence of the ability to:

- produce a design report for a server (or servers) with complex user and network service requirements
- install and configure the server according to the produced design
- monitor and test the server
- troubleshoot server and network failures
- 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.

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:

- describe the key features of current network operating systems (NOS)
- identify and describe current server applications compatibility issues and resolution procedures
- discuss 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
- describe common network service management, including:
 - start
 - stop
 - restart
 - start on boot
- identify and describe network service security features, including server firewall configuration
- identify and summarise troubleshooting tools and techniques, including network diagnostic utilities
- describe common operating system installation and operation issues, including:
 - installation media:
 - CD
 - DVD
 - universal serial bus (USB)
 - boot disk
 - network and script (automated install)
 - deployment services
 - 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
- describe data security and storage measures required on a 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
- describe the process of managing a project, including:
 - documentation skills required for networks
 - process or task management
 - task scheduling utilities.

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 server installation may be conducted
- relevant server specifications
- cabling
- networked (LAN) computers
- server diagnostic software
- switching equipment
- client requirements
- wide area network (WAN) service point of presence
- workstations
- relevant regulatory documentation that affects installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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