



Australian Government

Department of Education, Employment and Workplace Relations

ICTTEN4198A Install, configure and test an internet protocol network

Release: 1

ICTTEN4198A Install, configure and test an internet protocol network

Modification History

Not Applicable

Unit Descriptor

<p>Unit descriptor</p>	<p>This unit describes the performance outcomes, skills and knowledge required to carry out the installation of network hardware and software, initial configuration according to organisational requirements and testing of an internet protocol (IP) network. This may be part of the upgrade of an existing network or the implementation of a new network.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.</p>
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Application of the Unit

<p>Application of the unit</p>	<p>Officers who carry out installation, maintenance and upgrade of ICT networks apply the skills and knowledge in this unit. They would be employed by telecommunications companies and IT networking provisioning companies.</p> <p>They will gain knowledge of hardware and software installations, routing and switching protocols and diagnostics required for integrating new and converging functionalities to the network.</p>
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to install an IP network	1.1. Prepare for given work according to relevant legislation, occupational health and safety (OHS), codes, regulations and standards 1.2. Arrange access to the site according to required procedure 1.3. Review existing <i>network</i> design <i>documentation</i> to ensure it is current and complete 1.4. Select the <i>components</i> and <i>network elements</i> required to be installed to meet the technical <i>requirements</i> 1.5. Contact vendors and service suppliers to obtain specifications and availability of identified components 1.6. Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to <i>client</i> 1.7. Liaise with <i>appropriate person</i> to obtain approval for the plans, including security clearance and timing
2. Install and configure an IP network	2.1. Install and configure server <i>hardware</i> and <i>software</i> according to organisational and industry <i>standards</i> , following plans 2.2. Install and configure <i>computer</i> , other hardware and software according to organisational and industry standards and plans 2.3. Install and configure other software required for the network to operate with security and integrity according to the plan
3. Test and reconfigure the IP network	3.1. Test the installed software and hardware, utilising available <i>technical tools</i> , to ensure that all components are functioning as expected 3.2. Test the network to ensure it is functioning according to specifications 3.3. Resolve problems identified in the modified network
4. Complete documentation and clean up worksite	4.1. Complete hardware and asset recording document in line with <i>organisational requirements</i> 4.2. Document installation, boot-up and configuration procedures according to organisational requirements 4.3. Tabulate test results and complete all user reports 4.4. Complete client report and notify of status of the network

ELEMENT	PERFORMANCE CRITERIA
	4.5. Clean up and restore worksite to client's satisfaction 4.6. Secure sign-off from appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical, operational and business related matters
- literacy skills to interpret technical documentation and write reports in required formats
- numeracy skills to take test measurements, interpret results and evaluate performance and interoperability of network
- planning and organisational skills to plan, prioritise and monitor own work and coordinate the process in liaison with others
- problem solving and contingency management skills to adapt configuration procedures to requirements of network and reconfigure depending on differing operational contingencies, risk situations and environments
- research skills to interrogate vendor databases and websites to implement different configuration requirements to meet security levels
- technical skills to select and use router test software and hardware to suit different network applications

Required knowledge

- client business domain, business function and organisation
- current industry-accepted hardware and software products
- data and voice transmission technologies and protocols
- networking technologies incorporating substantial depth in some areas
- router-based network architectures

Evidence Guide

EVIDENCE GUIDE	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • plan and prepare for the IP network installation task • select network elements to meet the client business specifications • install, configure and test the network elements to ensure interoperability within the network • apply network topologies, protocols and security issues • apply solutions to defined network problems.
Context of and specific resources for assessment	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> • site where network installation may be conducted • use of field measurement equipment currently used in industry • network design documentation • equipment specifications • network components • hardware and software • live network • organisational guidelines • networked (LAN) computers • WAN service point of presence.
Method of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • direct observation of the candidate installing, configuring and testing a new or updated network • evaluation of report prepared by the candidate outlining testing procedures, test results, recommendation to network changes and completion records • oral or written questioning of required knowledge.
Guidance information for	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,</p>

EVIDENCE GUIDE**assessment**

for example:

- ICTTEN4199A Install, configure and test a router
- ICTTEN5201A Install, configure and test a server.

Aboriginal people and other people from a non-English speaking background may have second language issues.

Access must be provided to appropriate learning and assessment support when required.

Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.

In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

Where applicable, physical resources should include equipment modified for people with special needs.

Range Statement**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Network may include:

- data
- internet
- internet protocol private branch exchange (IP)

RANGE STATEMENT	
	PBX) <ul style="list-style-type: none"> • IPTV • large and small local area networks (LAN) • national wide area networks (WAN) • radio frequency identification (RFID) • storage area network (SAN) • voice • voice over internet protocol (VoIP) • virtual private network (VPN).
Documentation may include:	<ul style="list-style-type: none"> • audit trails • client training • equipment inventory • ISO, IEC, AS standards • naming standards • project management templates and report writing • satisfaction reports • version control.
Components may include:	<ul style="list-style-type: none"> • CD, DVD and Blu-ray drives • central processing unit (CPU) • complementary metal oxide semiconductor (CMOS) battery • central processing unit (CPU) upgrades • fax and modem cards • hard drives (internal and external) • hardware • interface cards • motherboards • RAM upgrades • software • wireless adaptors.
Network elements may include:	<ul style="list-style-type: none"> • adaptors • communications cables and connectors • hubs • routers • servers • switches.
Requirements may refer to:	<ul style="list-style-type: none"> • application • business • network

RANGE STATEMENT	
	<ul style="list-style-type: none"> • people in the organisation • system.
Client may include:	<ul style="list-style-type: none"> • external organisations • individuals • internal departments • Internal employees.
Appropriate person may include:	<ul style="list-style-type: none"> • authorised business representative • client • supervisor.
Hardware may include but is not limited to:	<ul style="list-style-type: none"> • cables: <ul style="list-style-type: none"> • Category 5e, 6, or 7 • crossover • fibre • shielded twisted pairs (STP) • straight through • unshielded twisted pairs (UTP) • digital subscriber line (DSL) modems • modems and other connectivity devices • network elements • personal computers • remote sites • workstations.
Software may include:	<ul style="list-style-type: none"> • commercial software applications • in-house or customised software • open software • organisation-specific software • packaged software.
Standards may include:	<ul style="list-style-type: none"> • ISO, IEC, IEEE, IETF, ITU, AS standards • organisational standards • project standards.
Computer may include:	<ul style="list-style-type: none"> • laptops • mobile equipment • netbooks • other devices • servers • smart phones • workstations.
Technical tools may include:	<ul style="list-style-type: none"> • diagnostic software • hyperterminal

RANGE STATEMENT	
	<ul style="list-style-type: none"> • LAN Cat tester.
<i>Organisational requirements</i> may include:	<ul style="list-style-type: none"> • preventative maintenance and diagnostic policy • problem solution processes • roles and technical responsibilities in the network management • vendor and product service level support agreements • work environment.

Unit Sector(s)

Unit sector	Telecommunications
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Co-requisite units

Co-requisite units	

Competency field

Competency field	Telecommunications networks engineering
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