



Australian Government

Department of Education, Employment and Workplace Relations

ICAI4029C Install network hardware to a network

Release: 1

ICAI4029C Install network hardware to a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan, manage and install new hardware components in a network.
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Application of the Unit

Application of the unit	
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Licensing/Regulatory Information

Not Applicable

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. Determine hardware requirements	1.1. Assess <i>client hardware</i> and cabling requirements, considering compatibility with existing <i>application software</i> and <i>operating system</i> 1.2. Analyse requirements against local area network (LAN), wide area network (WAN), wireless networks, and mobile equipment access design limitations and <i>organisational guidelines</i> 1.3. Evaluate <i>client</i> requirements in line with <i>organisational guidelines</i> , corporate purchasing procedures, licensing arrangements and budget
2. Obtain hardware	2.1. Contact vendors and obtain technical specifications 2.2. Evaluate/test hardware in line with <i>client</i> requirements and <i>organisational guidelines</i> 2.3. Document recommendations and provide copies to <i>appropriate person</i> 2.4. Determine and document licensing requirements and security issues 2.5. Acquire <i>hardware</i> according to recommendations and organisational procedures
3. Install network hardware	3.1. Conduct installation with minimal disruption to <i>clients</i> 3.2. Install <i>hardware</i> in accordance with appropriate installation procedures 3.3. Configure and test the installation to ensure that it meets <i>client</i> needs
4. Provide support for installed products	4.1. Determine and document <i>client</i> instructions and needs 4.2. Provide one-to-one instruction to <i>client</i> and users, as required 4.3. Obtain <i>client</i> evaluation and feedback, to ensure that <i>client</i> requirements have been met
5. Determine and provide instruction and support	5.1. Determine and document requirements for group instruction to cater for <i>client</i> and user needs 5.2. Refer group training requirements to <i>appropriate person</i> 5.3. Obtain <i>client</i> and user group evaluation and feedback

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Customer service skills in a range of contexts at various levels (e.g. timely response to requests, providing client instruction when installing new hardware or software)
- Solving unknown problems in a range of contexts (e.g. when installing new hardware or software)
- Interpretation of technical and hardware installation manuals
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. planning schedules for installation of network equipment)
- Report writing skills for business, requiring depth in some areas.
- Analysis and evaluation of information in a defined range of areas (e.g. research into the most suitable type of equipment for requirements)
- Ability to manage change, in order to maintain the continuity of network operations and business functions during network installation tasks
- Questioning and active listening skills to convey and clarify complex information
- Using diagnostic software

Required knowledge

- Basic working knowledge of current industry-accepted network protocols
- Basic knowledge of current industry-accepted network hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of current industry, data and voice networking, security products, devices and procedures, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Detailed knowledge of the operating system (e.g. Mac OS, Linux, Novell, Windows), sufficient to enable basic installation
- LAN capabilities and characteristics, such as network type (e.g. Ethernet, Appletalk) IP addressing, switch/hub operation
- Organisational contracting procedures and responsibilities
- Detailed knowledge of network connections (e.g. types of cables, such as category 5 e, 6 and 7 unshielded twisted pair (UTP), coaxial and terminators, RJ-45, cabling distance limitations (e.g. 100 metres for Ethernet category 5 UTP) and including wireless
- Detailed knowledge of set-up and configuration procedures
- Detailed knowledge of software packages supported by the organisation
- Detailed knowledge of hardware and software installation procedures
- General knowledge of system diagnostic software

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 following is essential:</p> <ul style="list-style-type: none"> • Assessment must confirm the ability to install a range of hardware, by planning, managing and supporting the installation of new components in a network according to organisational policy and procedures. • The support person must demonstrate the ability to offer support to the user in adapting to the new equipment. <p>To demonstrate competency in this unit the following resources will be needed:</p> <ul style="list-style-type: none"> • Application software and operating system • Vendor hardware and software components • Technical documentation and installation manuals • Networked computers • Organisational guidelines • Live network
Context of and specific resources for assessment	<p>The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.</p> <p>Assessment must ensure:</p> <ul style="list-style-type: none"> • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	<p>The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.</p> <ul style="list-style-type: none"> • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	<p>The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p> <p>An individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas

EVIDENCE GUIDE

	<ul style="list-style-type: none"> • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services
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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.

Hardware may include but are not limited to:	<ul style="list-style-type: none"> • personal computers • peer-to-peer and client-server networks (including LANs but excluding WANs) • wireless networks, mobile equipment, printers, print servers, monitors • Input/Output devices (e.g. extended or non-standard keyboard and mouse), network cards, cables, some simple switches (e.g. not programmable) and CD drives/burners
Application software may include:	<ul style="list-style-type: none"> • database programs to handle data and voice functionality • word processors • email programs • internet browsers • system browsers • spreadsheets
Operating system may include but is not limited to:	<ul style="list-style-type: none"> • Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above

RANGE STATEMENT	
	Note: The use of operating system in this unit is in the context of the pre-existing system and may therefore not be current industry version. Preference is for Linux 7.0 or above, Windows 2000 or above, Apple OS X or above
<i>Organisational guidelines</i> may include but are not limited to:	<ul style="list-style-type: none"> • personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
<i>Appropriate person</i> may include:	<ul style="list-style-type: none"> • supervisor • teacher • authorised business representative • client
<i>Client</i> may include but is not limited to:	<ul style="list-style-type: none"> • internal departments • external organisations • clubs • individual people • internal employees

Unit Sector(s)

Unit sector	Implement
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Co-requisite units

Co-requisite units	

Competency field

Competency field	
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