



Australian Government

Department of Education, Employment and Workplace Relations

ICAI4097C Install and configure a network

Release: 1

ICAI4097C Install and configure a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	<p>This unit defines the competency required to plan and carry out the installation of network hardware and software and initial configuration according to organisational guidelines.</p> <p>The following units are linked and form an appropriate cluster:</p> <ul style="list-style-type: none"> • ICAI3021B Connect internal hardware components • ICAS4127B Support system software
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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		
	ICAI3101B	Install and manage network protocols

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. Confirm client requirements and network equipment required	<p>1.1. Identify, clarify and organise requirements of the client relevant to network needs, following organisational requirements</p> <p>1.2. Evaluate the requirements along with business needs in order to translate into technical requirements</p> <p>1.3. Review existing network design documentation to ensure it is current and complete</p> <p>1.4. Identify the components, both hardware, cabling infrastructure, wireless access and software, that are required to be installed to meet the technical requirements</p> <p>1.5. Contact vendors and service suppliers to obtain specifications and availability of identified components</p>
2. Install hardware	<p>2.1. Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client</p> <p>2.2. Liaise with appropriate person to obtain approval for the plans, including security clearance and timing</p> <p>2.3. Confirm and review supplier documentation that cables and associated components have been installed in accordance with industry standards, organisational requirements and building requirements to meet network traffic projections</p> <p>2.4. Install and configure server hardware in accordance with organisational and industry standards, following plans</p> <p>2.5. Install and configure computer and other hardware in accordance with organisational and industry standards, following plans</p> <p>2.6. Install and configure other hardware or components in accordance with organisational and industry standards, following plans</p>
3. Install software	<p>3.1. Install and configure server software in accordance with organisational procedures and industry standards, following plans</p> <p>3.2. Install and configure software in accordance with organisational procedures and industry standards, following the plan</p> <p>3.3. Install and configure other software required for the</p>

ELEMENT	PERFORMANCE CRITERIA
	<i>network</i> to operate, following the plan
4. Configure and test modified network	4.1. Test the installed <i>software</i> and <i>hardware</i> , utilising available technical tools, to ensure that all <i>components</i> are functioning as expected 4.2. Test the <i>network</i> to ensure it is functioning according to specification 4.3. Resolve problems identified in the modified <i>network</i>
5. Document and sign off	5.1. Complete hardware and asset recording document in line with organisational requirements 5.2. Document installation, boot-up and configuration procedures as per <i>organisational requirements</i> 5.3. Secure sign-off from <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Understanding network systems and software
- Ability to work with hardware
- Plain English literacy and communication skills in relation to dealing with clients
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when hardware and asset recording documentation is completed in line with organisational requirements)
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in networking technologies (e.g. when network components, both hardware and software that are required to be installed, are identified)
- Project planning skills in relation to set benchmarks and identified scope
- Problem solving skills in a predictable range of network problems

Required knowledge

- Broad knowledge of current industry-accepted hardware and software products
- Broad knowledge of the client business domain, business function and organisation (e.g. when confirming client requirements and network equipment)
- Broad knowledge of networking technologies incorporating substantial depth in some areas (e.g. network operating systems, cabling standards)

REQUIRED SKILLS AND KNOWLEDGE

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| <ul style="list-style-type: none">• Broad knowledge of data and voice transmission technologies and protocols |
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Evidence Guide

EVIDENCE GUIDE

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.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- Assessment must confirm knowledge of networking technologies and how hardware and software is installed and configured.
- Assessment must confirm the ability to create and follow implementation plans, to install network hardware and software, and to configure and test the network according to specified guidelines, as well as produce appropriate documentation.

To demonstrate competency in this unit the following resources will be needed:

- Network design documentation
- Equipment specifications
- Network components, hardware and software
- Live network
- Organisational guidelines
- Networked computers

Context of and specific resources for assessment

Simply defined, a computer network is a group of interconnected computers, databases, and other peripherals and components (both software and hardware) connected by communications lines and capable of exchanging and sharing files and information.

Individual working networks can range from a peer-to-peer network connecting a small number of users in an office or department, to a local area network connecting many users over permanently installed cables and dial-up lines. Other networks include wide area networks connecting users on several different networks spread over a wide geographic area as well as various types of wireless networks.

EVIDENCE GUIDE	
	<p>It is essential that this unit covers both skills and knowledge aspects of a broad variety of network components both hardware and software, ranging for example from SOHO LANs, business requirements, such as servers, firewalls and gateways to large country-wide WLANs.</p> <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. • Applications may involve responsibility for, and limited organisation of, others. <p>The scope and complexity of knowledge and skills is dependent on the tasks undertaken.</p>
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

EVIDENCE GUIDE	
	<p>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.</p> <ul style="list-style-type: none"> • The assessment of this unit of competency will usually include observation of LAN configuration and equipment selection for a variety of scenarios. • 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, for example:</p> <ul style="list-style-type: none"> • ICAI3021B Connect internal hardware components • ICAS4127B Support system software <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 • 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

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	<ul style="list-style-type: none"> • Maintain knowledge of industry products and services <p>Additionally, an individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> • Select appropriate software • Configure network components • Select a network component for a particular task • Interpret available information and request clarification where needed • Take responsibility for outputs in work and learning
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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.

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees
- customers

Network may include but is not limited to:

- large and small LANs
- VPNs
- national WANs
- the internet
- the use of the public switched telephone network (PSTN) for dial-up modems only
- DSL connections
- private lines
- data
- voice

RANGE STATEMENT	
Requirements may be in reference to:	<ul style="list-style-type: none"> • business • system • application • network • people in the organisation
Organisational requirements may include but is not limited to:	<ul style="list-style-type: none"> • how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy, roles and technical responsibilities in the network management • vendor and product service-level support agreements
Documentation may follow:	<ul style="list-style-type: none"> • ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Components may include:	<ul style="list-style-type: none"> • motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Hardware may include but is not limited to:	<ul style="list-style-type: none"> • workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but is not	<ul style="list-style-type: none"> • mobile equipment • commercial software applications

RANGE STATEMENT	
limited to:	<ul style="list-style-type: none"> • organisation-specific software • packaged software • in-house or customised software
<i>Appropriate person</i> may include:	<ul style="list-style-type: none"> • supervisor • teacher • authorised business representative • client
<i>Cables</i> may include but are not limited to:	<ul style="list-style-type: none"> • to UTP • STP • Cat 5e • Cat 6 • Cat 7 • fibre
<i>Requirements</i> may vary from:	<ul style="list-style-type: none"> • a simple addition or upgrade to a major new installation
<i>Standards</i> may include:	<ul style="list-style-type: none"> • ISO/IEC/IEEE/IETF/ITU/AS standards • organisational standards • project standards
<i>Computer</i> may include:	<ul style="list-style-type: none"> • mobile equipment • laptops • workstations • servers • other devices

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	
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