



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **ICAS5122C Identify and resolve network problems**

**Release: 1**

## ICAS5122C Identify and resolve network problems

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit defines the competency required to troubleshoot local area network problems.</p> <p>The following units are linked and form an appropriate cluster:</p> <ul style="list-style-type: none"><li>• ICAA5150C Evaluate vendor products and equipment</li><li>• ICAI5087B Acquire system components</li><li>• ICAI5174B Install high end switches in multi switched local area networks</li><li>• ICAI5176C Install and configure router</li><li>• ICAI4188B Install and maintain a server</li><li>• ICAI5196B Implement secure encryption technologies</li><li>• ICAS5192B Configure an internet gateway</li></ul> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
------------------------	---

### Application of the Unit

<b>Application of the unit</b>	
--------------------------------	--

### Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Prerequisite units		
	ICAI4097C	Install and configure a network

## Employability Skills Information

Employability skills	This unit contains employability skills.
----------------------	--

## 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.
---	--

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Implement regular network monitoring	1.1. Set up appropriate logs to monitor network activity and to produce a management information base (MIB) 1.2. Use <i>network tools</i> to benchmark the <i>network</i> and to establish a reference point for <i>network</i> performance 1.3. Identify critical activity levels and network capacity 1.4. Regularly review documents and logs to facilitate <i>network</i> tuning 1.5. Make recommendations to management for additional <i>network</i> resources to improve performance or to pro-actively avoid problems
2. Troubleshoot network problems	2.1. Communicate with help desk and other support services to quickly identify <i>network</i> problems 2.2. Use various tools and knowledge of <i>network topology</i> and protocols to identify <i>network</i> problems 2.3. Advise users and clients of progress and solutions in a timely manner 2.4. Complete support <i>documentation</i>

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

- Plain English literacy and communication skills in relation to dealing with clients and team members.
- Analytical/logical skills for identifying, analysing and evaluating support issues and network problems
- Project-planning skills in relation to scope, time, cost, quality, communications and risk management
- Problem solving skills for a defined range of unpredictable problems

#### Required knowledge

- Current industry-accepted hardware, cabling and software products, with broad knowledge of general features and capabilities
- General knowledge of the client business domain, business function and

**REQUIRED SKILLS AND KNOWLEDGE**

organisation

- Networking technologies (e.g. TCP/IP, OSI protocol stacks, IEEE, IETF, ITU standards), with broad knowledge of features and capabilities, and substantial depth in protocols such as Ethernet, AppleTalk, Novell, Linux or Unix protocols
- Network management tools, with broad knowledge of general features and capabilities, with substantial depth in troubleshooting areas
- Detailed knowledge of organisational maintenance response level escalation procedures (e.g. level one, phone operator; level two, technical personnel; level three, specialised person)

## 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 the troubleshooting and monitoring facilities available in the operating environment. It must also confirm the ability to undertake logical troubleshooting processes and network support activities. It should include constant monitoring of the network to maintain network activities.

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

- Live system
- Network support tools

#### Context of and specific resources for assessment

Troubleshooting local area network problems requires a focus on:

- Applying both software- and hardware-based tools
- Logical troubleshooting methods derived from knowledge and understanding of network topologies and protocols
- Using a management information base of accumulated fault resolution information to determine the nature and location of the fault
- Problem resolution related to wide area network (WAN) connections that the LAN uses for general use of the internet or for connection to other remote LANs belonging to the organisation should also be considered.
- 

The application of this competency would generally require a degree of instruction as part of the problem solution stage, in order to empower the client to resolve or manage recurrences of similar problems. Additionally, this competency may involve participation in the development of strategic initiatives or solutions as part of

**EVIDENCE GUIDE**

	<p>a more long-term approach to network planning.</p> <p>In applying the skills and methods within this competency, the aim should be to minimise network down time.</p> <p>The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.</p> <p>The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.</p> <p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>• Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.</li> </ul>
<b>Method of assessment</b>	<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"> <li>• 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</li> </ul>

**EVIDENCE GUIDE**

	<p>demonstration of competency.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>
<p><b>Guidance information for assessment</b></p>	<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"> <li>ICAA5150C Evaluate vendor products and equipment</li> <li>ICAI5087B Acquire system components</li> <li>ICAI5174B Install high-end switches in multi-switched local area networks</li> <li>ICAI5176C Install and configure router</li> <li>ICAI4188B Install and maintain a server</li> <li>ICAI5196B Implement secure encryption technologies</li> <li>ICAS5192B Configure an internet gateway</li> </ul> <p>An individual demonstrating this competency would be able to:</p> <ul style="list-style-type: none"> <li>Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas</li> <li>Analyse and plan approaches to technical problems or management requirements</li> <li>Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations</li> <li>Evaluate information, using it to forecast for planning or research purposes</li> <li>Take responsibility for own outputs in relation to broad quantity and quality parameters</li> <li>Take some responsibility for the achievement of group outcomes</li> </ul>



## EVIDENCE GUIDE

	<ul style="list-style-type: none"> <li>• Maintain knowledge of industry products and services</li> </ul>
--	--

## 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 but is not limited to:

- large and small LANs
- VPNs
- WANs
- wireless networks
- the Internet
- the use of the PSTN for dial-up modems only
- DSL connections
- private lines
- data
- voice

***Network topology*** may include:

- ring
- star
- bus
- hierarchical
- hybrid

***User*** may include:

- a person within a department
- a department within the organisation
- a third party

***Network tools*** may include but are not limited to:

- network performance software
- data and voice integration measurements
- policing and shaping tools
- frequency analysers
- cable testing
- equipment testing
- carrier connection tests

**RANGE STATEMENT****Documentation** may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing principles

**Unit Sector(s)**

<b>Unit sector</b>	Support
--------------------	---------

**Co-requisite units**

<b>Co-requisite units</b>		

**Competency field**

<b>Competency field</b>	
-------------------------	--