



**Australian Government**

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

# **ICAI4244A Install and maintain an RFID system**

**Release: 1**

## ICAI4244A Install and maintain an RFID system

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit defines the competency required for installation and ongoing maintenance of an RFID system according to design specification.</p> <p><i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i></p>
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### Application of the Unit

<b>Application of the unit</b>	
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### Licensing/Regulatory Information

Refer to Unit Descriptor

### Pre-Requisites

<b>Prerequisite units</b>		
	ICAI3101B	Install and manage network protocols
	ICAI4029C	Install network hardware to a network

## Employability Skills Information

<b>Employability skills</b>	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. Install hardware specified for the RFID technical environment	1.1. Identify technical <i>specifications</i> including hardware and software requirements from given designs 1.2. Install interrogators/readers according to given plan. 1.3. Install tags and document the correct procedures for locating and orienting tags
2. Identify and resolve faults	2.1. Troubleshoot problems between interrogators/readers, tags and networks including tuning for <i>optimum performance</i> 2.2. Investigate causes of interference with RFID systems
3. Test the RFID installation according to specification and standards	3.1. Test installation according to <i>specifications</i> and standards including for optimum placement of tags and for data transmission completeness. 3.2. <i>Document</i> the test results
4. Document the installation in compliance with customer requirements	4.1. <i>Document</i> the installation according to the design and customer requirements 4.2. Ensure that client is informed about standards applying to the installation

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

- Demonstration of installation techniques
- Presentation on use of spectrum analyser
- Demonstration of cable and network testing
- Demonstration of troubleshooting techniques
- Ability to implement and verify RFID operations
- Ability to implement RFID architecture across a secure environment
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in RFID technologies (e.g. when RFID components, both hardware and software that are required to be installed, are identified)

**REQUIRED SKILLS AND KNOWLEDGE**

- Project planning skills in relation to set benchmarks and identified scope
- Problem solving skills in a predictable range of network problems
- Use of relevant management tools
- Project management skills
- Ability to create technical and user documentation
- Ability to understand user applications and relate user needs
- Ability to analyse operational issues
- Ability to outline maintenance procedures
- Ability to follow specified maintenance procedures
- Ability to troubleshoot failures

**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 RFID equipment)
- Broad knowledge of RFID technologies incorporating substantial depth in some areas (e.g. network operating systems, interrogators and sensors, wireless technologies, cabling standards)
- Broad knowledge of RFID technologies and protocols
- Enterprise communication/training systems in relation to training and advising staff involved in the deployment
- Desktop applications and operating systems as required
- Knowledge of compatibility issues and resolution procedures
- Knowledge of system procedures
- Enterprise communication/training systems in relation to training and advising staff involved in the deployment

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<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>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the following is essential:</p> <ul style="list-style-type: none"> <li>• Identify technical <i>specifications</i> including hardware and software requirements from given designs</li> <li>• Troubleshoot problems between interrogators/readers, tags and networks including tuning for <i>optimum performance</i></li> <li>• Test installation according to <i>specifications</i> and standards including for optimum placement of tags</li> <li>• <b>Document</b> the installation according to the design and customer requirements</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Generally speaking, an RFID system must provide some, if not all, of the following features and capabilities:</p> <ul style="list-style-type: none"> <li>• The ability to encode RFID tags</li> <li>• The ability to attach encoded RFID tags to items</li> <li>• The ability to track the movement of tagged items</li> <li>• The ability to integrate RFID information into business applications</li> <li>• The ability to produce information that can be shared between businesses</li> <li>• The ability to develop self-organisation of intelligent devices</li> </ul> <p>Encoding RFID tags is a two-step process.</p> <ul style="list-style-type: none"> <li>• The first step is to select an identification scheme to uniquely track the items in question. Once this is done, you can attach those identities to the RFID tags.</li> <li>• It is important to ensure that the right tags, readers, and antennas are selected and that they are configured and aligned to achieve the required read rates.</li> </ul> <p>Most likely, using RFID information will require</p>

<b>EVIDENCE GUIDE</b>	
	<p>integration with, and modifications to existing applications. Integrating RFID information with enterprise applications is no different than integrating other data sources. Architectural approaches, technologies, and products available for application integration apply equally well to RFID solutions.</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.</p> <p>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>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.</p> <p>Applications may involve responsibility for, and limited organisation of, others.</p> <p>To demonstrate competency in this unit the person will require access to:</p> <ul style="list-style-type: none"> <li>• Network design documentation</li> <li>• Equipment specifications</li> <li>• Network components (routers, switches, multilayer switches, VoIP devices)</li> <li>• Live network</li> <li>• Organisational guidelines</li> <li>• Networked computers</li> </ul>
<b>Method of assessment</b>	The purpose of this unit is to define the standard of performance to be achieved in the workplace.

**EVIDENCE GUIDE**

	<p>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> <p>The following assessment method is appropriate for this unit:</p> <ul style="list-style-type: none"> <li>• Competency in this unit should 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.</li> <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.</li> <li>• The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.</li> </ul>
<p><b>Guidance information for assessment</b></p>	<p>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"> <li>• Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts</li> <li>• Apply solutions to a defined range of unpredictable problems</li> <li>• Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas</li> <li>• Identify, analyse and evaluate information from a variety of sources</li> <li>• Take responsibility for own outputs in relation to specified quality standards</li> <li>• Take limited responsibility for the quantity and</li> </ul>



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	<p>quality of the output of others</p> <ul style="list-style-type: none"> <li>• Maintain knowledge of industry products and services</li> </ul>
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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.

<b>Specifications</b> may include site diagram describing:	<ul style="list-style-type: none"> <li>• interrogation zone locations</li> <li>• cable drops</li> <li>• device mounting locations</li> </ul>
<b>Optimum performance</b> may include:	<ul style="list-style-type: none"> <li>• antenna type</li> <li>• equipment mounting and protection</li> <li>• cable length/loss</li> <li>• interference considerations</li> <li>• tag type (e.g. active, passive, frequency)</li> </ul>
<b>Document</b> may include:	<ul style="list-style-type: none"> <li>• ISO/IEC/AS standards</li> <li>• audit trails</li> <li>• naming standards</li> <li>• version control</li> <li>• project management templates</li> <li>• report writing</li> </ul>

**Unit Sector(s)**

<b>Unit sector</b>	Implement
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**Co-requisite units**

<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	
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