



Australian Government

Department of Education, Employment and Workplace Relations

ICAA5246A Design an RFID implementation

Release: 1

ICAA5246A Design an RFID implementation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for designing an RFID system implementation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs
	ICAD4217B	Create technical documentation

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. Analyse client requirements to produce a project specification	1.1. Identify business requirements , audit site and identify hardware and software requirements 1.2. Define software and hardware types to ensure that the proposed system is designed to meet business requirements 1.3. Produce a request for tender (RFT) document related to required RFID technologies
2. Select appropriate interrogators/readers	2.1. Conduct a survey of available interrogators/readers 2.2. Ensure compatibility with current network infrastructure 2.3. Select the most appropriate interrogator/readers for the given specification
3. Design appropriate interrogator/reader zones	3.1. Identify and minimise interrogator to interrogator interference 3.2. Select multiple interrogators/readers if appropriate to optimise system performance 3.3. Ensure antenna geometry and footprint are consistent with the chosen design 3.4. Identify and minimise sources of interference 3.5. Incorporate into the design the use of anti-collision protocols
4. Select an appropriate tag	4.1. Select and customise appropriate tag to client requirements , including memory size, security and encryption requirements 4.2. Predict the performance for read distance, write distance and tag response time to confirm that these conform with client requirements 4.3. Select the optimal locations for an RFID tag to be placed on an item
5. Document the design	5.1. Complete documentation according to client requirements 5.2. Ensure that client is informed about standards applying to the design

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Report writing skills
- Working in teams
- Business analysis
- Planning and designing RFID systems
- Performance analysis at the system and component level
- Basic cost-benefit comparisons (including return on investment (ROI) and total cost of ownership (TCO) in relation to applications, installation design
- Product analysis
- The use of tools for measuring (e.g. generic benchmarks, software sizing models, workload testing, performance monitoring)

Required knowledge

- Knowledge of radio spectrum and RFID frequencies
- Knowledge about RF interference
- RFID vendor product knowledge
- Business domain
- A knowledge of RFID hardware and software
- Network protocols and operating systems
- Security protocols, standards and data encryption
- RFID architecture
- Business process design
- Linkage between processes
- Customer and business liaison
- RFID and corporate strategy
- Implications of technology connectivity

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:

- Requirement analysis
- Preparation of a request for information from vendors
- Evaluation of vendor products
- Preparation of a tender final design
- Survey of vendor equipment with recommendations for requested application
- Diagram showing location, type and positioning of interrogators/readers
- Documentation on type of antenna and reason for choice

Context of and specific resources for assessment

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.

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.

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.

To demonstrate competency in this unit the person will require access to:

EVIDENCE GUIDE	
	• client functional requirements • RFID equipment specifications • database software • organisational guidelines • network/computer layout documentation and premises plans
Method of assessment	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. The following assessment method is appropriate for this unit: • 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. The interdependence of units for assessment purposes may vary with the particular project or scenario. • The assessment of this unit of competency will usually include observation and research of existing RFID technologies and their impact on various business scenarios.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be

EVIDENCE GUIDE

	able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • 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.

Business requirements may include:	• the business • system • application • network or people in the organisation
RFID technologies may include:	• RFID and networking tools and equipment • RFID interrogators/readers and tags • servers and workstations
Design may include:	• new hardware • hardware upgrades • new software • software upgrades • user training

RANGE STATEMENT	
	• implementing a new system
Tag to client requirements may include:	• memory size • security • encryption requirements
Optimal locations may include:	• media and adhesive selection for tags • tag orientation and location • tag stacking (shadowing) • package contents • packaging: • items • tags • labels • inserts • product to attach to: • liquids • metal • polarisation

Unit Sector(s)

Unit sector	Analyse and Design
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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