Australian Government

CPPSIS5036A Integrate spatial datasets

Release 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

CPPSIS5036A Integrate spatial datasets

Modification History

Unit revised and not equivalent to CPPSIS5006A Integrate spatial datasets
Element structure, performance criteria, and critical aspects reviewed to reflect workplace requirements
Skills and knowledge requirements and the range statement updated

Unit Descriptor

This unit of competency specifies the outcomes required to integrate spatial datasets including linking spatial, aspatial and attribute data for the purpose of providing spatially referenced information. It requires the ability to apply theoretical spatial concepts to a range of situations in order to correctly identify and integrate the appropriate information. Functions would be carried out within organisational guidelines.

Application of the Unit

This unit of competency supports the application of self-management skills, planning and organising within data management and data manipulation, and the use of technology. The skills and knowledge acquired upon completion of this unit would support the needs of employees in surveying, cartography, town planning, mapping or geographic information systems.

Licensing/Regulatory Information

No licensing, legislative and regulatory requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

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 required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Confirm task.	1.1	***Client specifications*** are analysed to determine specific needs and required outcomes.
		1.2	Requirements for spatial data and ***constraints*** are identified through further consultation with ***client*** or ***relevant personnel*** and outcomes are recorded according to ***organisational guidelines***.
2	Obtain spatial and attribute data.	2.1	Sources are determined consistent with specifications using relevant ***metadata***.
		2.2	Data is obtained according to organisational guidelines.
		2.3	Data is checked for integrity and quality.
		2.4	Geographic coverage is assessed for completeness.
		2.5	A metadata set is compiled based on sourced spatial data.
		2.6	***Exception reports*** are referred to relevant personnel.
		2.7	***OHS*** requirements are planned for and adhered to.
3	Create resultant spatial dataset.	3.1	***Filtering parameters*** are established in line with scientific accuracy, redundancy, and client and organisational requirements.
		3.2	Spatial and ***aspatial*** data is translated into a format which satisfies specifications.
		3.3	***Spatial datasets*** are populated with edited spatial data

			according to ***organisational spatial requirements***.
		3.4	Spatial and ***attribute*** data are linked according to specifications and industry standards.
4	Link spatial and attribute data.	4.1	Method required for referencing the location of the attribute data is identified.
		4.2	Linking of the spatial and attribute data is completed according to the specifications.
		4.3	Spatial queries are carried out via the spatial data to access the attribute data.
5	Test and validate spatial datasets.	5.1	***Test queries*** are determined and implemented to ensure spatial datasets meet specifications.
		5.2	Spatial data is checked to ensure correctness of links.
		5.3	An exception report is developed according to organisational guidelines and reported back to relevant personnel.
		5.4	***Relevant documentation*** is completed according to organisational guidelines.
		5.5	Quality and useability of datasets are ensured according to organisational guidelines.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills

- ability to translate requirements into design
- analytical skills, including systems analysis
- communication skills to:
  - consult effectively with clients and colleagues
  - impart knowledge and ideas through oral, written and visual means
- computer skills to complete business documentation and apply software and hardware
- literacy skills to:
  - assess and use workplace information
  - read and write technical reports
  - research and evaluate in order to assess sources of spatial data
- numeracy skills to:
  - analyse errors
  - conduct image analysis
  - perform mental calculations
  - interpret and analyse statistics
  - record with accuracy and precision
  - undertake computations
- organisational skills to:
  - coordinate technical and human resource inputs to research activities
  - manage information
  - prioritise activities to meet contractual requirements
- spatial skills to:
  - exercise precision and accuracy in relation to spatial and aspatial data integration
  - archive and retrieve spatial data
  - manage and manipulate spatial data
  - manage files

Required knowledge

- classification systems, processes and products
- coordinating reference systems

- high-level computer knowledge
- industry standards and organisational policies and guidelines relating to spatial datasets
- key characteristics of spatial and aspatial data
- key features of spatial data storage technology
- precision and accuracy in relation to spatial information
- principles of data acquisition (e.g. photogrammetry, remote sensing, terrestrial survey and hydrography)
- quality guidelines regarding the validity of spatial data
- reference systems and their relationship to each other
- relevant spatial database design tools
- security management guidelines
- spatial database operation
- spatial data handling
- spatial data management practices
- spatial dataset integration, including the role of scale in dataset integration
- spatial data structure requirements

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Overview of assessment

This unit of competency could be assessed on its own or in combination with other units relevant to the job function, for example CPPSIS5031A Plan spatial data collection and validation, CPPSIS5032A Capture new spatial data, CPPSIS5035A Obtain and validate spatial data, CPPSIS5037A Maintain complex spatial data systems, CPPSIS5038A Develop a complex spatial and aspatial database, and CPPSIS5059A Determine suitable information sources to create new spatial datasets.

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

A person who demonstrates competency in this unit must be able to provide evidence of:

- devising and implementing a cost-effective, functional solution to spatial datasets
- measuring outcomes against specifications
- obtaining spatial and attribute data
- testing and validating spatial datasets
- knowledge of data acquisition methods.

Specific resources for assessment

Resource implications for assessment include access to:

- assessment instruments, including personal planner and assessment record book
- assignment instructions, work plans and schedules, policy documents and duty statements
- registered training provider of assessment services
- relevant guidelines, regulations and codes of practice
- suitable venue and equipment.

Access must be provided to appropriate learning and assessment support when required.
Where applicable, physical resources should include equipment modified for people with disabilities.

Context of assessment

Holistic: based on the performance criteria, evidence guide, range statement, and required skills and knowledge.

Method of assessment

Demonstrated over a period of time and observed by the assessor (or assessment team working together to conduct the assessment).
Demonstrated competency in a range of situations, that may include customer/workplace interruptions and

	involvement in related activities normally experienced in the workplace. Obtained by observing activities in the field and reviewing induction information. If this is not practicable, observation in realistic simulated environments may be substituted.
Guidance information for assessment	Assessment requires that the clients' objectives and industry expectations are met. If the clients' objectives are narrowly defined or not representative of industry needs, it may be necessary to refer to portfolio case studies of a variety of surveying and spatial information services requirements to assess competency. Oral questioning or written assessment and hypothetical situations (scenarios) may be used to assess underpinning knowledge (in assessment situations where the candidate is offered a preference between oral questioning or written assessment, questions are to be identical). Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff. All practical demonstration must adhere to the safety and environmental regulations relevant to each State or Territory. Where assessment is for the purpose of recognition (recognition of current competencies [RCC] or recognition of prior learning [RPL]), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time. In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Assessment processes will be appropriate to the language and literacy levels of the candidate and any cultural issues that may affect responses to the questions, and will reflect the requirements of the competency and the work being performed.

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 in the performance criteria is detailed below. Add any 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.

Client specifications refer to description of outputs and may be contained in:	• contracts • memos • tender briefs • verbal instructions • written instructions.
Constraints may include:	• coverage • datum • environmental factors • industry requirements • legal and statutory • financial • resource availability • time.

Client may include:	• customers with routine or special request
	• external to organisation
	• internal to organisation
	• regular and new customers, including:
	  • business enterprises
	  • government agencies
	  • members of the public
	  • suppliers.

Relevant personnel may include:	• colleagues • staff or employee representatives • supervisors or line managers • suppliers • users.
Organisational guidelines may include:	• code of ethics • company policy • legislation relevant to the work or service function • manuals • OHS policies and procedures • personnel practices and guidelines outlining work roles and responsibilities.
Metadata may include:	• summarised information about a spatial dataset that describes the characteristics of the dataset, including: • availability

- conditions of use
- coordinate system
- currency
- date of acquisition
- quality
- source
- spatial data acquisition methodologies
- version control.

Exception reports may include:	• information on non-conforming items that require attention by other functions.
OHS may include:	• Australian standards • development of site safety plan • identification of potential hazards • inspection of work sites • training staff in OHS requirements • use of personal protective clothing • use of safety equipment and signage.
Filtering parameters may include:	• attribute range accuracy • geographic location.
Aspatial data refers to:	• data without a spatial component.
Spatial datasets may include:	• digital • hard copy • image • propriety standards • text or vector.
Organisational spatial requirements may include:	• administration (e.g. postcodes, suburbs, and federal and state electoral counties) • analysis of environmental, land and geographic information • asset management • cartographic services • civil engineering • digital imagery • electricity • emergency services management • environmental datasets • geographic information systems • hydrography • integrated services – environmental, land and geographic related datasets • land ownership tenure system • local government • location-based services • global positioning • mapping facilities • photogrammetry • remote sensing • site analysis • survey marks

- sewerage
- telecommunications
- terrestrial survey
- town planning
- utility services such as water
- water catchment.

Attributes are properties associated with an entity and may include:

- colour
- layer
- level
- line type and width
- text.

Test queries refer to:

- model set of questions with known answers.

Relevant documentation may include:

- electronic or paper-based correspondence with client
- final report
- records of conversation
- organisational work activity sheets.

Unit Sector(s)

Not applicable.

Custom Content Section

Not applicable.