



Australian Government

CPPSIS6044A Manage GIS data

Release 1

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Modification History

Version	Comment
1	This version first released with CPP07 Property Services Training Package Version 12.

Unit Descriptor

This unit of competency specifies the outcomes required to capture, store, validate and upgrade geographic information data and systems, and to ensure their integrity for specified outcomes.

Application of the Unit

This unit of competency supports the application of planning, organising, monitoring, problem-solving, error analysis and accuracy; designing and interpreting technical documentation; and a practical understanding of technology. The skills and knowledge acquired on completion of this unit would support the needs of employees in surveying and spatial information services (SSIS).

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	Determine data requirements.	1.1	Organisational needs are identified in consultation with functional areas of an organisation.
		1.2	<i>Data</i> requirements are defined according to organisational and <i>end user</i> needs and <i>industry standards</i> .
2	Implement data standards.	2.1	Appropriate <i>data standards</i> are implemented consistent with industry standards.
		2.2	Opportunities for continuing improvement are investigated, assessed and implemented.
3	Coordinate data capture and conversion.	3.1	Data acquisition strategies are developed to meet defined requirements, and appropriate information is accessed from <i>internal and external sources and networks</i> .
		3.2	Range of <i>data input technologies</i> for data acquisition is used.
		3.3	Data is converted using appropriate technical interfaces.
		3.4	Effects of spatial and temporal resolution of the information content of remote-sensed data are taken into account in assessing the data.
4	Implement data maintenance and validation procedures.	4.1	Routines for data validation and maintenance are developed and implemented.
		4.2	Versions of data and related systems are documented to

- ensure reliable historical tracking and accessibility.
- 4.3 Appropriate data is collated into one system for transfer and integration into other systems.
- 5 Develop and implement data quality and security assurance procedures.
- 5.1 Quality procedures for data acquisition, storage and supply are developed and implemented.
- 5.2 Meta-data standards are developed and implemented in line with industry best practice.
- 5.3 Regular audits of data quality are preformed and followed up with appropriate advice.
- 5.4 Systems for archiving and backing up the data resource are implemented.
- 6 Provide input into organisational systems development.
- 6.1 Timely advice and forecasting of data storage capacity, processing capability and other requirements are provided to ensure organisational geographic information system (GIS) requirements are recognised and considered.
- 6.2 Input is provided to consideration of new, upgraded or maintained GIS in the organisation.

Required Skills and Knowledge

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

Required skills

- analytical skills to analyse GIS system options and application architecture
- communication skills to:
 - consult effectively with clients and colleagues
 - impart knowledge and ideas through oral, written and visual means
- initiative and enterprise skills to:
 - apply judgement relating to suitability of data
 - interpret project requirements
 - negotiate with clients
- literacy skills to:
 - assess, develop and use workplace information
 - prepare and manage documentation and information flow
 - read and write specification reports, including technical reports
 - research and access information in order to source geographic information
- numeracy skills to:
 - analyse errors
 - estimate costs
 - perform mental calculations
 - record with accuracy and precision
- planning and organising skills to:
 - plan and prioritise activities to meet contractual requirements
 - conduct project activity
 - manage information
- self-management skills to:
 - maintain attention to detail
 - manage project activity
 - meet deadlines
- spatial skills to:
 - archive and retrieve spatial data
 - capture geographic information
 - conduct quality audit
 - manage and manipulate spatial data
- technology skills to use computers to develop business documentation

Required knowledge

- complex spatial information technologies
- data management processes
- data output and distribution technologies, including:
 - graphic interfaces
 - macro development
 - networks
 - query languages
 - remote access
 - scripting
- database structures, including the relationship of spatial features of database
- effects of spatial and temporal resolution of the information content of remote-sensed data
- GIS software, such as:
 - ArcInfo
 - GenaMap
 - MapInfo
- information management techniques
- legislation relating to:
 - appropriate Acts
 - copyright
 - freedom of information
 - intellectual property
 - trade practices
- organisational and industry policies and practices relating to:
 - custodianship of data
 - industry practices, policies and standards
- requirements relevant to managing GIS data:
 - accuracy and precision requirements
 - data formats
 - statutory requirements relating to managing GIS data
 - potential inaccuracies and problems relating to GIS data
 - quality standards, including quality improvement practices
- remote sensing technologies, including:
 - aerial photography
 - coordinate geometry
 - digitising
 - scanning
- spatial phenomena

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 CPPSIS6042A Coordinate information gathering and GIS development and CPPSIS6043A Develop, monitor and maintain geographic information systems.
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: • managing GIS tasks and organisational data requirements • monitoring and reviewing use of GIS systems • knowledge of organisational GIS data requirements.
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, which 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 SIS 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.

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.

Data may include:

- computer records
- graphical
- user application programs, such as:
 - accounting packages
 - databases
 - spreadsheets
- hard copy documents, such as:
 - books
 - maps
 - plans
 - work registers
- information, such as:
 - census data
 - community facilities
 - demographic data
 - local government facilities
 - organisational locations
 - property classifications
 - property boundaries
 - property ownership

- transport routes
- utilities
- zonings
- spatial
- textual.

End users may include:

- elected members
- general public
- land information authorities
- local government
- real estate agents
- residents
- state and federal government departments
- statutory bodies, including land titles office
- transport companies
- utilities.

Industry standards may include:

- confidentiality
- informal practices not detailed in manuals or standard operating procedures
- privacy
- protocols.

Data standards may include:

- standards determined by the end user relating to:
 - acquisition
 - quality
 - storage.

Internal and external sources and networks may include:

- internal:
 - aerial photographs
 - deed books
 - plans
 - surveys
 - transaction books
- external:
 - GIS sites
 - GIS vendors
 - government departments or authorities
 - land titles office
 - local government
 - orthophotography
 - private industry
 - products
 - property agencies
 - street directory companies
 - surveys
 - telecommunications industry
 - water authorities
 - user groups

- Data input technologies*** may include:
- utility organisations
 - preparation of cross-sections and plans, with all information included
 - professional or technical literature
 - survey data demographic requirements.
 - hard copy material
 - remote sensing, including:
 - aerial photography
 - coordinate geometry
 - digitising
 - scanning
 - surveys.

Unit Sector(s)

Surveying and spatial information services

Custom Content Section

Not applicable.