



Australian Government

CPPSIS5038 Develop spatial databases

Release: 1

CPPSIS5038 Develop spatial databases

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5038A Develop a complex spatial and aspatial database.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to develop spatial databases using a range of storage media, including digital and hard copy storage. The unit covers analysing and evaluating storage requirements, specifications and constraints, to identify data components to be maintained and appropriate storage solutions. The unit also covers arranging to create data indexes to assist in data retrieval and storage; using indexes to record and retrieve data; and accessing and retrieving data. It requires the ability to translate data into the required format to meet task requirements. The unit also requires the ability to negotiate with data suppliers and network storage providers, and to implement project management techniques to manage risks and contingencies relating to data security, and use supervisory techniques to allocate tasks and achieve planned outcomes.

The unit supports those who work in a lead role in a surveying or spatial information services team in areas such as surveying, town planning, cartography, mapping and geographic information systems (GIS).

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

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

- | | |
|---|---|
| 1. Prepare for storage of spatial data. | 1.1. Data storage objectives and constraints are identified and documented in consultation with <i>appropriate persons</i> . |
|---|---|

- 1.2. Data design is analysed to determine components to be maintained according to task requirements.
 - 1.3. Storage techniques to be used are determined and evaluated according to organisational requirements.
 - 1.4. **Administrative and legal requirements** for data storage are complied with and recorded according to organisational requirements.
 - 1.5. Work is allocated to appropriate persons and supervisory processes are implemented to ensure work is completed within time available.
2. Store spatial data.
 - 2.1. Arrangements are put in place to create data indexes to assist in data retrieval and storage according to task requirements.
 - 2.2. Spatial data is recorded in an index according to organisational requirements.
 - 2.3. Method of spatial data storage is selected according to organisational requirements.
 - 2.4. Spatial data is backed up according to organisational requirements.
 - 2.5. Distribution method is determined to ensure that current data is available according to task and organisational requirements.
3. Access and retrieve spatial data.
 - 3.1. Arrangements are put in place to use the indexing system to locate spatial data source.
 - 3.2. Spatial data is accessed and if necessary translated into required format according to task requirements.
4. Manage contingencies.
 - 4.1. Risk management plan is developed to identify risks, **contingencies** and possible solutions to anticipated spatial data storage and retrieval problems.
 - 4.2. Risk and contingency plans are communicated to appropriate persons and, if necessary, implemented

according to organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Performance feature

Skill

- | | |
|-------------------------------|--|
| Learning skills to: | <ul style="list-style-type: none">• research and access sources of spatial data. |
| Numeracy skills to: | <ul style="list-style-type: none">• conduct image analysis• identify budgetary constraints relating to cost of storage systems. |
| Oral communication skills to: | <ul style="list-style-type: none">• negotiate distribution methods and network access with data storage providers. |
| Reading skills to: | <ul style="list-style-type: none">• interpret graphical information obtained from global navigation satellite systems (GNSS) and GIS. |
| Writing skills to: | <ul style="list-style-type: none">• write technical reports detailing problems and solutions relating to data storage and retrieval. |
| Technology skills to: | <ul style="list-style-type: none">• use a range of software applications to access and store data• use querying commands to obtain information from a database. |
| Problem-solving skills to: | <ul style="list-style-type: none">• analyse storage solutions appropriate to different types of spatial data• identify contingency procedures in the event of unforeseen risk to data security. |

Range of Conditions

This section specifies work environments and conditions that may affect performance.

Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Appropriate persons

must include at least two of the following:

- client
- end user
- manager
- network storage provider
- qualified surveyor
- spatial data supplier
- staff.

Administrative and legal requirements

must include at least two of the following:

- Indigenous considerations
- licensing arrangements
- relevant state, territory and federal legislation and regulations relating to data access, use and storage, including data privacy and information copyright
- royalty obligations
- title search processes.

Contingencies

must include at least four of the following:

- duplicates
- fireproof storage
- insurance
- media malfunction
- media and formats becoming outdated
- off-site storage
- storage in different media.

Unit Mapping Information

CPPSIS5038 Develop a complex spatial and aspatial database

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS5038 Develop spatial databases

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also develop two different spatial databases to meet specifications.

While developing the above spatial databases, the person must:

- analyse written spatial data storage specifications to identify storage requirements and constraints
- arrange data indexes that allow for several notations for cross-referencing data
- access spatial data and translate it into required format
- arrange to create, access and use an indexing system for spatial data
- assess feasibility of data storage options based on available budget, resources and priorities
- comply with administrative and legal requirements for storing, using and retrieving spatial data
- comply with organisational requirements for:
 - recording data
 - completing documentation
 - health and safety when using screen-based equipment
- develop risk and contingency management plans to ensure security of stored spatial data
- negotiate with clients, data suppliers and data network storage providers to achieve required outcomes
- plan system design, including assessing available formats and storage requirements
- read and write technical reports detailing storage solutions for spatial data
- research and evaluate sources of spatial data
- supervise and coordinate staff to assist with research activities
- use project management techniques to coordinate database requirements
- use software, hardware and networking applications to access, store and retrieve data.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- administrative and legal requirements for storing, using and retrieving digital and hard copy spatial data, including copyright
- spatial data storage and retrieval methods
- key features of current indexing systems
- data retrieval methods, including querying and browsing techniques for obtaining information from databases
- industry metadata standards relating to:
 - availability
 - conditions of use
 - coordinate system
 - currency
 - custodian
 - data accuracy
 - data description
 - date of acquisition
 - licence
 - quality
 - source
 - spatial data acquisition methodologies
 - version control
- network and security guidelines relating to spatial data
- organisational policies and procedures relating to:
 - accessing, recording, storing and retrieving spatial data
 - communicating with clients, end users and network storage providers
 - completing records and documentation
 - working within budget and resource constraints and priorities
- spatial data formats, classification and indexing systems
- spatial data input technologies, including digitising, scanning, remote sensing and satellite imagery
- spatial data maintenance and management systems
- key features of spatial reference systems
- types of storage media for a range of spatial data.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - computer with software appropriate for spatial data storage and retrieval
 - ancillary hardware
- specifications:
 - organisational policies and procedures relating to:

- work health and safety
- data privacy and information copyright
- physical conditions:
 - access to equipped work station
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by task and organisational requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

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