



**Australian Government**

# **CPPSIS5064 Coordinate GIS data manipulation and analysis**

**Release: 1**

# CPPSIS5064 Coordinate GIS data manipulation and analysis

## Modification History

Release 1.

Replaces superseded equivalent CPPSIS5064A Manipulate and analyse GIS data.

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

## Application

This unit of competency specifies the outcomes required to coordinate geographic information system (GIS) data manipulation and analysis to meet client specifications. The unit covers analysing client needs and GIS data format requirements and developing procedures; assessing the applicability of existing tools, models, theories and applications; and developing models to achieve the required outcome, including feasible parameters, equations and assumptions. The unit also covers verifying data source integrity and manipulating and analysing data for presentation. The unit requires the ability to use computers and GIS software as well as querying and programming languages to capture geographic information, obtain information from databases, and create layers on maps. It also requires the ability to comply with organisational and legal requirements relating to client consultation and data ownership.

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 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 to meet client GIS data needs. | 1.1. Client requirements and project specifications for GIS data format are determined in consultation with <b><i>appropriate persons</i></b> . |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|

- |                                     |      |                                                                                                                                                                     |
|-------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | 1.2. | Parameters for data manipulation and analysis are specified according to project specifications.                                                                    |
|                                     | 1.3. | New procedures for manipulating and analysing data to meet project specifications are documented.                                                                   |
| 2. Establish GIS data models.       | 2.1. | Applicability of existing tools, models, theories, applications and solutions is reviewed against project specifications.                                           |
|                                     | 2.2. | Feasible parameters, equations and assumptions are developed according to project specifications.                                                                   |
|                                     | 2.3. | Models are established to meet project specifications according to organisational requirements.                                                                     |
| 3. Manipulate and analyse GIS data. | 3.1. | Processes for data manipulation and analysis are determined and used to meet project specifications.                                                                |
|                                     | 3.2. | Source data limitations and other restricting factors are analysed to ensure data integrity, and problems are identified and resolved or contingencies are managed. |
|                                     | 3.3. | Data is isolated and retrieved from source, and interrogated to ensure reliability according to project specifications.                                             |
|                                     | 3.4. | Data is manipulated and prepared for presentation media, and project is finalised 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.

### Skill

### Performance feature

Initiative and enterprise skills to:

- translate client requirements into model design.

- Numeracy skills to:
- perform data reductions.
- Oral communication skills to:
- negotiate data solutions with clients.
- Reading skills to:
- interpret graphical information in maps
  - interpret technical information obtained from external datasets.
- Writing skills to:
- record details of quality improvements.
- Technology skills to:
- use querying commands to obtain information from databases
  - use a computer and software to create layers on maps.
- Problem-solving skills to:
- identify deficiencies in existing procedures and models.

## 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 one of the following:
- client
  - colleague
  - end user
  - manager
  - spatial data supplier.

## Unit Mapping Information

CPPSIS5064A Manipulate and analyse GIS data

## 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 CPPSIS5064 Coordinate GIS data manipulation and analysis

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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 coordinate geographic information system (GIS) data manipulation and analysis to meet client needs for two different projects.

While coordinating the above GIS data manipulation and analysis projects, the person must:

- negotiate with clients regarding data format requirements
- conduct research to source geographic information
- develop parameters, equations and assumptions to meet task requirements
- develop procedures and establish models for data analysis that meet established client specifications for data format
- analyse data sources to verify data integrity to ensure:
  - accuracy
  - completeness
  - confidence limits
  - currency
  - quality
  - resolution
  - scale
- build up elements of a database
- capture geographic information
- manipulate and analyse datasets using general query and programming languages, scripts and command lines
- use GIS software to manipulate and analyse data for display on a map
- comply with organisational and legal requirements for:
  - client consultation
  - data ownership, including accessing and using spatial data, including copyright, intellectual property, data privacy and trade practices
- comply with organisational requirements for recording data and completing documentation, and using screen-based equipment.

## Knowledge Evidence

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

- data reduction and manipulation techniques
- database structures and spatial features of databases
- line instructions and programming languages to capture geographic information
- methods for creating layers on maps
- querying and browsing techniques for obtaining information from databases
- types of spatial data formats
- organisational and legal requirements for accessing and using spatial data, including copyright, intellectual property, and trade practices
- organisational policies and procedures relating to:
  - accessing, recording and storing spatial data
  - communicating with clients and end users
  - completing records and documentation
  - custodianship of data
  - using computer systems and software to manipulate GIS data.

## Assessment Conditions

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

- equipment:
  - computer and software appropriate for manipulating GIS data
- specifications:
  - organisational policies, procedures and documentation relating to data privacy and information copyright
- physical conditions:
  - access to equipped work station
- relationships with team members and supervisor:
  - working in a team.
- relationships with clients:
  - client consultation required.

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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