

**Draft 0.2**

This is a draft update to CPPSIS4035 Apply GIS software to solve spatial data problems:  
<https://training.gov.au/Training/Details/CPPSIS4035>.

Code changed to CPPSUR4035.

Expanded acronym 'GIS' in title to read: 'geographic information system'.

Changed PCs to active voice.

Title changed to Apply GIS software to spatial problems

Elements and Performance Criteria have been reworked in response to feedback.

Changed 'person' to 'candidate' in PE

Range of Conditions added to Knowledge Evidence.

## Unit of Competency

### CPPSI4035 Apply geographic information system (GIS) software to spatial problems

#### Modification history

Release	Comments
1	<del>Replaces superseded equivalent CPPSI4035A Apply GIS software to problem solving techniques.</del> <del>This version first released with CPP Property Services Training Package Version 3.</del>
	Replaces superseded equivalent CPPSI4035 Apply GIS software to solve spatial data problems

#### Application

This unit specifies the skills and knowledge required to use geographic information system (GIS) software applications to show spatial patterns and relationships for identified issues. It involves integrating various sources of spatial information using spatial overlay techniques and analysis of data.

The unit also covers using spatial and attribute queries to generate results for presenting spatial data, and using univariate statistics to explore datasets.

This unit is suitable for entry level technicians who will use a broad range of cognitive, technical and communication skills to select and apply a range of methods, tools, materials and information to complete routine and non-routine activities and provide and transmit solutions to a variety of predictable and sometimes unpredictable problems. Surveying and spatial information skills are applied in a range of industry contexts including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant State/Territory regulations that govern surveying work as well as work health and safety, regulations and legislation that apply to the workplace.

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

#### Prerequisite Unit

None

#### Unit Sector

Surveying and Spatial Information Services

#### Elements and Performance Criteria

1. Prepare for spatial analysis.	1.1 Clarify task requirements to address the issue under consideration with appropriate persons. 1.2 Apply appropriate work practices for safe screen-based work. 1.3 Access, interpret and manipulate spatial datasets to confirm they are in acceptable format to meet task requirements. 1.4 Identify and resolve routine spatial data problems or irregularities with geometry and attributes and resolve with appropriate persons. 1.5 Use spatial and attribute queries to select features from vector and aspatial text databases.
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	1.6 Determine accuracy of query results on vector and raster datasets by cross referencing in tabular and cartographic view. 1.7 Generate and use univariate statistics to explore and apply the dataset.
2. Undertake spatial analysis.	2.1 Manipulate existing data and integrate new data according to task requirements. 2.2 Use vector and raster geoprocessing techniques to generate results relating to spatial task. 2.3 Check that outputs of analysis are correct and applicable.
3. Produce reports.	3.1 Compile information on the limitations and assumptions of the datasets and the geoprocessing techniques used according to task and enterprise requirements. 3.2 Present summary statistics and results using tabular, cartographic and graphic methods according to task requirements. 3.3 Incorporate results for all sources into reports according to enterprise requirements. 3.4 Comply with legal and ethical requirements for producing reports based on spatial data analysis.
4. Finalise data analysis.	4.1 Check output spatial data for completeness and manipulate where necessary, according to enterprise requirements. 4.2 Create metadata according to enterprise requirements. 4.3 Store spatial data in a secure location, and record details according to enterprise requirements. 4.4 Comply with enterprise requirements for documentation and storage relating to audit trails, naming standards, templates and version control.

### Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

### Unit Mapping Information

Supersedes and is equivalent to CPPSIS4035 Apply GIS software to solve spatial data problems

### Links

The Companion Volume Implementation Guide for the CPP Property Services Training Package is available at <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

## Assessment Requirements for CPPSSI4035 Apply GIS software to spatial problems

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### Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by using geographic information system (GIS) software applications to integrate data and show spatial patterns and relationships for identified issues for two different projects.

The candidate must manage and manipulate:

- thematic and continuous raster datasets
- aerial and satellite imagery
- point, line and polygon vector datasets
- aspatial text datasets

and present the results accurately and meaningfully using maps, tables and graphs.

### Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- key features of spatial reference systems
- metadata fields relating to accuracy, currency, extent, availability and datasets
- legal requirements for accessing, manipulating, reporting and archiving spatial data, including data privacy information copyright and licensing.
- querying and browsing techniques for obtaining information from datasets
- calculation and interpretation of univariate statistics:
  - average, median and mode
  - maximum and minimum
  - range
  - standard deviation
  - variance
- graphical methods for representing distributions
- vector and raster data models
- raster geoprocessing techniques:
  - reclassifying
  - resampling
  - combining raster datasets
  - extracting from raster datasets
- vector geoprocessing techniques:
  - buffer
  - clip
  - dissolve

- intersect
  - merge
  - union
  - erase
  - reproject.
- file formats for map production
- spatial data storage technology.

### **Assessment Conditions**

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- computer with access to GIS software applications
- printer and other hardware necessary for work tasks.



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