



Australian Government

CPPSIS4026 Digitally enhance and process image data

Release: 1

CPPSIS4026 Digitally enhance and process image data

Modification History

Release 1.

Replaces superseded non-equivalent CPPSIS4026A Read and interpret image data.

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

Application

This unit of competency specifies the outcomes required to enhance and process image data using digital techniques. The unit covers using remote sensing software to manipulate, enhance, classify and process data to reveal geographic patterns and relationships and improve resolution. Image data can be digital, multispectral scanner, or radar. Platforms can be aircraft, unmanned aerial vehicles or satellites at low to high altitudes. The unit requires assessing the survey area and project specifications to determine the types and possible sources of image data to meet requirements.

The unit supports those who work in a spatial information services team in support positions, such as image analyst, geographic information system (GIS) analyst, GIS officer, or cartographer.

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.

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|-------------------------|---|
| 1. Identify image data. | 1.1. Project specifications, survey area and types of image data requirements are determined in consultation with <i>appropriate persons</i> . |
| | 1.2. Possible sources of image data are identified to meet project specifications. |

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| | 1.3. | Constraints of different types and formats of image data are identified in relation to project specifications. |
| 2. | Process image data. | |
| | 2.1. | Image data is accessed and analysed using digital techniques to clarify features and properties according to project specifications. |
| | 2.2. | Ground control targets for photogrammetric mapping are checked to enhance image data. |
| | 2.3. | Image data is processed, analysed and classified according to organisational procedures to achieve project specifications. |
| 3. | Finalise digital image enhancement tasks. | |
| | 3.1. | Data image problems are identified and resolved using enhancement techniques according to organisational requirements. |
| | 3.2. | Information from data images is used to meet project specifications, and documentation is completed 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

Learning skills to:

- conduct research to identify image data sources.

Numeracy skills to:

- calculate scale of image data
- solve problems relating to area, height, depth, dimension, direction and position in actual operational activity and virtual representation.

Oral communication skills to:

- ask questions to clarify data image requirements.

Reading skills to:

- interpret graphical and technical information, including shapes and patterns within digital images.

Writing skills to:

- record clear and accurate measurements and computations.

Technology skills to:

- use a computer and software to manipulate and enhance image resolution.

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

- client

must include at least

- experienced colleague

one of the following:

- supervisor or line manager.

Unit Mapping Information

No equivalent unit.

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 CPPSIS4026 Digitally enhance and process image data

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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 use remote sensing applications to digitally enhance, process and classify two of the following types of image data for two different projects:

- digital aerial photographs
- digital terrestrial images
- images from an unmanned aerial vehicle
- light detection and ranging (LiDAR)
- satellite images.

One of the above projects must have a built environment focus, and the other a natural environment focus.

While digitally enhancing and processing the above image data, the person must:

- analyse project specifications to clarify types of image data required and to identify possible sources of suitable image data
- apply ground controls to aerial photographs
- calculate information in digital and hard copy image data to measure and identify scale
- communicate clearly with others to clarify and discuss work tasks
- comply with industry-accepted standards for processing remotely sensed data
- comply with legislative and organisational requirements relating to data privacy and information copyright
- comply with organisational requirements relating to health and safety when using screen-based equipment, and completing records and documentation
- georeference images
- identify and resolve constraints and problems relating to image data
- identify ground controls, including targets for horizontal and vertical control
- use software applications to access, analyse and enhance image data.

Knowledge Evidence

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

- basic properties and characteristics of image data used in spatial applications
- key features of spectral signatures, discriminant functions, supervised and unsupervised clustering, and ground trothing
- organisational policies and guidelines relating to equipment use, health and safety, and accessing and formatting image data and copyright
- photogrammetric control requirements relating to three-dimensional (3-D) model image data
- possible sources of image data
- set-out and format requirements for image data
- techniques for enhancing image resolution, including basic interpolation.

Assessment Conditions

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

- equipment:
 - computer and software with image enhancement functionality
- specifications:
 - task specifications
 - organisational policies and procedures relating to:
 - work health and safety
 - data privacy and information copyright
- physical conditions:
 - access to equipped workstation
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by project 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.

Links

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