Australian Government
Great Barrier Reef
Marine Park Authority

INTERNAL GUIDELINE

Digital Geographic Data – Provision by External Parties (Revision 0)

Target audience: *Any external party providing geospatial data to the Great Barrier Reef Marine Park Authority ('the Authority') via an agreement, such as (but not limited to) a contract or Deed.*

Purpose
1. To communicate the minimum standard that digital geographic data, including metadata, must be provided to the Authority in order to assure quality, usability and completeness of information.

Definitions
- ***Data***, in the context of this guideline, refers to digital geographic dataset(s), and includes vector, raster, multi-dimensional and tabular data and the associated metadata.

- ***Dataset*** means an identifiable collection of data.
  Note: A dataset may be a smaller grouping of data which, though limited by some constraint such as spatial extent or feature type, is located physically within a larger dataset. Theoretically a dataset may be a small as a single feature or feature attribute contained within a larger dataset. A hardcopy map or chart may be considered a dataset[1].

- ***Digital geographic data*** means any data stored digitally that are geospatially enabled, and are able to be interrogated using the Authority's enterprise Geographic Information System (GIS). This includes paper maps that have been scanned and stored digitally, as well as aerial and satellite imagery that is able to be georeferenced.

- ***External party***, in the context of this guideline, refers to any individual or organisation that is not part of the Great Barrier Reef Marine Park Authority.

- ***Metadata*** means a series of structured facts that describe information or information services[1]. In the context of this guideline, metadata is digital geographic data metadata.

- ***XML*** means eXtensible Markup Language, and is an open standard for describing data and defining data elements on a web page and business-to-business documents[1].

Related documents/ material/ requirements
- AS/NZS ISO 19115.1:2015 Amd 1:2018 – Geographic information – Metadata, Part 1: Fundamentals
- TS ISO 19115.3:2018 – Geographic information – Metadata, Part 3: XML schema implementation for fundamental concepts
- ISO/TS 19139.1:2019 – Geographic information – XML schema implementation – Part 1: Encoding rules
- Open Geospatial Consortium GeoTIFF Standard
- Open Geospatial Consortium Network Common Data Form (netCDF) standards suite
- Open Geospatial Consortium Web Feature Service (WFS) standard
- Open Geospatial Consortium Web Coverage Service (WCS) standard
- Internal policy, 'Digital Geographic Data Metadata Policy' (document number 100503)
- Internal guideline, 'Digital Geographic Metadata Profile – Technical Specifications' (document number 100504).

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Guidance

Context

2. These guidelines apply to enduring digital geographic data that are created and provided to the Authority by a party or organisation external to the Authority, and that are intended for use and re-use in Authority products. These guidelines also apply to any significant update of these same datasets.

3. These guidelines are not applicable to those digital geographic data that are created for limited use only, or as intermediate steps in a larger geoprocessing task.

Principles

4. The principles outlined in this section should be adhered to by external parties.

5. Where an external party is unable to adhere to one or more of these principles, an alternative approach must be discussed with, and agreed to by the Authority's Geospatial Services team, before any data is provided.

Data formats

6. The Authority's enterprise GIS is ESRI ArcGIS for Enterprise.

7. Table 1 below contains a list of preferred data formats for the most common types of geospatial data.

Table 1: Preferred formats for providing digital geographic data to the Authority

Data type	Preferred format
Vector	Shapefile or file geodatabase
Raster	GeoTIFF
Tabular	Comma separated value (CSV) file
Multi-dimensional	NetCDF
Data services	WFS/WCS

8. The specific data format and data transfer procedure must be discussed with and agreed to by the Authority's Geospatial Services team, before any data is provided.

Datum

9. The horizontal datum must be Geocentric Datum of Australia 1994 (GDA94).

    9.1. After 30 June 2020 Geocentric Datum of Australia 2020 (GDA2020) will also be accepted.

10. The vertical datum for three-dimensional data must be the Australian Height Datum (AHD).

Coordinates, mensuration and time and date

11. Coordinates should be stated in degrees, decimal minutes to a precision of three decimal places (or approximately two metres).

    11.1. If a supplier is unable to meet this level of precision this must be discussed with the Authority's Geospatial Services team, before any data is provided.

    11.2. If the project requires a higher level of precision this must be discussed with the Authority's Geospatial Services team, before any data is provided.

12. Mensuration of values must be carried out using the Geocentric Datum of Australia 1994 Australia Albers coordinate system.

    12.1. Area mensuration results are to be stated in metres square, or kilometres square – to the nearest square metre.

    12.2. Length mensuration results are to be stated in either metres or kilometres to the nearest metre.

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13. Time and date values should be in Australian Eastern Standard Time.

    13.1. Universal Time Coordinated (UTC) time will be accepted, but it must be explicitly stated that the time and date are in UTC.

14. Dates must be in either DD/MM/YYYY or YYYY/MM/DD format.

Attribute data

15. A complete data dictionary must accompany any datasets.

    15.1. The data dictionary must describe each of the attribute fields in full, including any appropriate units as well as precision and accuracy statements for numerical fields.

16. Attribute field names cannot begin with a numeral.

17. Field names cannot contain special characters, except underscores.

18. Logical aliases should be provided for all field names.

Metadata

19. Complete metadata, compliant with ISO 19115.1:2015 Amd 1:2018 (as amended from time to time) must be provided for every dataset.

    19.1. The ICSM Good Metadata Guide may assist in preparing compliant metadata[2].

20. Any data received without compliant metadata will be deemed incomplete.

    The metadata must contain, at a minimum, the information described in Table 2. Further information and detail about the Authority's metadata profile is available within the internal guideline, 'Digital Geographic Metadata Profile – Technical Specifications' (document number 100504).

Table 2: Minimum metadata content requirements

Abstract	• Dataset description providing a detailed summary of the content.
Lineage	• Background/history to the data collection and processing. • Include process steps if relevant.
Dataset purpose	• Description of why the dataset was developed/collected and how it is intended to be used. • Specify if the dataset is fit for purpose, including how it meets/doesn't meet fitness for purpose and what quality tests have been applied.
Dataset status	• Status of the dataset e.g., 'completed', 'ongoing', 'under development'.
Alternative title	• Other names or codes that the dataset is known by.
Resolution	• A scale resolution or distance resolution must be provided for the dataset.
Roles	

Originator of the data	• Contact details for the person or organisation who captured or created the dataset.
	• Provide:
	  o Name of the organisation or individual
	  o Position
	  o Contact details – minimum, an email address and work phone number

Data custodian	• Contact details for the person or organisation who is the custodian of the data.
	• Provide:
	  o Name of the organisation or individual
	  o Position

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	o Contact details – minimum, an email address and work phone number
Ingest/ data transfer	• Person or position responsible for obtaining the dataset and uploading the data to the agreed storage location. • Provide: o Name of individual o Position o Contact details – minimum, an email address and work phone number
Quality assurance	• Person or organisation responsible for conducting quality assurance for the data. • Provide: o Name of individual or organisation o Position o Contact details – minimum, an email address and work phone number
Maintenance	• Person, position or organisation responsible for data life-cycle maintenance, including metadata maintenance. • Provide: o Name of individual or organisation o Position o Contact details – minimum, an email address and work phone number
Access control	• Person or position responsible for granting access to the data where access is restricted for security or legal reasons. • Provide: o Name of individual o Position o Contact details – minimum, an email address and work phone number
Constraints	
Security classification	• Mandatory for all data classified at a higher level than 'Unclassified'.
Access constraints	• Provide licence or other agreement information for accessing the data and metadata.
Use constraints	• Provide licence or other agreement information for using the data and metadata.
Extent	
Spatial extent	• Provide the spatial extent of the dataset in bounding x,y coordinates in decimal degrees • Provide the projection/datum.
Temporal extent	• Provide either: o the date/time when the dataset was acquired, or o the date/time when the dataset is valid. • Can be either a single date/time or a range (i.e., start and end date)
Formats	
Format name and version	• Name and version of the data format and the software version • Source format • Format for access.
Size of datasets	• Estimate of the storage size of datasets.

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Usage	
Dataset version	• The version of the dataset • Specify if it is raw or processed data • If two versions of the data (i.e., raw and processed) are being supplied, metadata must be completed in full for each dataset.
Data access	• Tools required to access, use and display the data.
Software	• Software used to generate the dataset, including the version number. • Software needed to access, use and display the data.
Release	• Release constraints must be discussed with, and agreed upon by the Authority's Geospatial Services team, prior to the provision of data.
Ingest preparation	
Ingest process	• Tools and environment required to ingest the data (e.g., file transfer from a third party supplied hard drive, digital download from websites <specify URL> etc.)
Quality assurance process	• A statement must be provided about the data lineage, data quality, standardisation, harmonisation and audit of the data. • This includes data cleaning, validation, and ensuring acceptable data structures or file format.
Maintenance process	• Information about maintenance frequency, date of next update and the update scope. • Includes potential requirement to update data in line with software updates to maintain access to the data.
Ingest process	
Search words/ keywords	• These should refer to terms that stakeholders will associate with the dataset and would use when searching data catalogues. • The use of ISO 19115 and/or ANZLIC (the Spatial Information Council) keywords is suggested.
Retention of data	• Source data are retained indefinitely for use by the Authority. • Specify any dependencies linked with the data (e.g., specific versions of software).

22. The preferred format for the supply of metadata is XML, compliant with ISO 19115.3/19139.1.

  22.1. If an XML document cannot be supplied, then a metadata statement document will be accepted.

Further information

23. Further information about the contents of this guideline can be sought from the following position:

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References/ endnotes

1   Australian New Zealand Land Information Council – the Spatial Information Council (ANZLIC). 2011, *ANZLIC Metadata Profile Guidelines*, Version 1.2, ANZLIC - the Spatial Information Council, Canberra.

2   Intergovernmental Committee on Surveying & Mapping. 2019, *ICSM ISO 19115-1 Metadata Good Practice Guide*, Commonwealth of Australia, Canberra.

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