

GENERAL SPECIFICATION

Geoinformation

GS EP GIN 304

Geosciences GIS Data Standard - Requirements for GIS studies

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1. Scope

This document defines the minimum standards required by Company, applicable to the Geosciences Geographic Information System (GIS) data delivery for Geosciences GIS studies. It aims to define principles and rules to be implemented within a Geosciences GIS study to ensure:

- The coherence and integrity of the data;
- The possibility to compare GIS studies, execute queries, analyze the data, etc.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
ISO 3166-1	Codes for the representation of names of countries and their subdivision - Part 1 : country codes

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
Not applicable	

3. Definitions

For some of the following definitions, the ESRI¹ [web site](#) has been used.

3.1 ArcGIS

ArcGIS is an integrated collection of GIS software products from ESRI that provides a standards-based platform for spatial analysis, data management, and mapping.

3.2 ArcGIS desktop

ArcGIS Desktop includes a suite of applications and tools allowing to perform any GIS task, simple to advanced, like mapping, geographic analysis, data editing and compilation, data management, visualization, and geoprocessing from your desktop environment.

¹ Company which provides complete system ArcGIS for designing and managing solutions through the application of geographic knowledge.

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3.3 ArcSDE

ArcSDE is an ESRI's technology for accessing and managing geospatial data within relational databases. ArcSDE technology supports reading and writing of multiple standards including (among other data storage options) Open Geospatial Consortium, Inc. (OGC), standards for simple features; the International Organization for Standardization (ISO) standard for spatial types; and the Oracle Spatial format.

3.4 Data model

GIS data models provide templates for the management and delivery of GIS data. They describe how the data is organized in the geodatabase.

It helps to improve:

- The data structure: it defines how data is organized and related (hierarchical, network, relational, etc.);
- The data integrity: it provides implicit rules for maintaining data integrity in the data model instance;
- The data manipulation: it provides a standard format to help creating and updating data.

3.5 Naming convention

The naming convention is a set of rules that define the characters and names to be used for files and folders in a GIS study. It is often used to ensure the quality of the data, to allow automatic data manipulation and to represent relevant information unambiguously.

3.6 File Geodatabase (FGDB)

A FGDB is primarily a geodatabase. The geodatabase is the common data storage and management framework for ArcGIS. It combines "geo" (spatial data) with "database" (data repository) to create a central data repository for spatial data storage and management.

The FGDB gives the user the ability to:

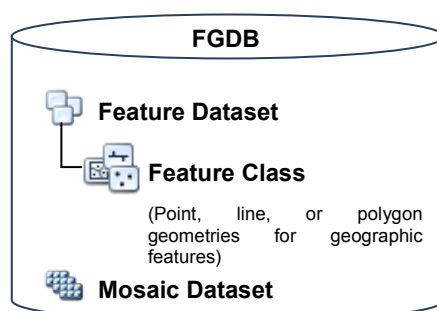
- Store a collection of spatial data in a centralized location;
- Apply rules and relationships to the data;
- Define geospatial relational models;
- Maintain integrity of spatial data;
- Work within a multiuser access and editing environment;

A FGDB is a geodatabase held in a file system for single users and small workgroups. It allows multiple readers, but only one editor per Feature Class. In a practical use, it has no real size limit (theoretically, a table can store up to 256 TB of data and a FGDB can store an unlimited number of tables) and has a good performance.

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A FGDB can store different types of objects. In the context of this General Specification, we can mention:

- The Feature Class
- The Feature Dataset
- The Mosaic Dataset



3.7 Feature Class (FC)

A FC is a collection of geographic features with the same spatial representation (such as points, lines, or polygons) a common set of Attribute (cf. § 3.11 Attribute) columns and the same spatial reference. FCs allow homogeneous features to be grouped together for data storage purposes. For example, a feature representing a main basin, a sub basin, and a non prospective basin can be grouped into a polygon FC named "basin".

3.8 Annotation Class (AC)

An AC is a specific FC that stores text or graphics that provide information about features or general areas of a map. An AC can be linked to another FC so that edits to the features are reflected in the corresponding AC (feature-linked AC).

3.9 Feature Dataset (FD)

A FD is a collection of FCs stored together with the same spatial reference. FDs hold a collection of spatially or thematically related FCs. They are used to organize these FCs and to facilitate the modeling of spatial relations between them.

3.10 Mosaic Dataset (MD)

A MD in a geodatabase allows the management of a collection of raster datasets (images) stored as a catalog and viewed as a mosaicked image. The raster datasets are not stored in the MD itself. Only a reference to the physical location is made, which allows the raster to remain in their native format and avoids duplication of the data. The collections can be extremely large both in total file size and number of raster datasets. The raster data can be organized according to its raster type which identifies metadata, such as georeferencing, acquisition date, and sensor type, along with a raster format.