An Introduction to the GIS/Geospatial Recommended Formats Statement

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Introduction

- Library of Congress has over 5.5 million maps
- We help build and manage geospatial collections in the Geography and Map Division
- We run the Congressional Cartography Program and support the Congressional Research Service, both part of the Library’s GIS analysis services to Congress
What is the Recommended Formats Statement (RFS)?

“Recommended Formats Statement identifies hierarchies of the physical and technical characteristics of creative formats, both analog and digital, which will best meet the needs of all concerned, maximizing the chances for survival and continued accessibility of creative content well into the future.”

https://www.loc.gov/preservation/resources/rfs/
How to read the RFS

VII. GIS, Geospatial, and Non-GIS Cartographic

https://www.loc.gov/preservation/resources/rfs/geo-carto.html
RFS vs Sustainability of Digital Formats

https://www.loc.gov/preservation/digital/formats
What criteria does the format consider?

The RFS considers two main sets of criteria:

➔ Global community sustainability factors (external)
➔ Local sustainability factors (internal)

The Library maintains a matrix of both sets of criteria against which each format is evaluated and a final decision rendered.
Global/Community (External) Format Sustainability Factors

➔ External dependencies
➔ Impact of patents
➔ Technical protection mechanisms
➔ Disclosure
➔ Adoption
➔ Transparency
➔ Self-documentation
Local (Internal) Format Sustainability Factors

➔ Internal staff experience and expertise
➔ Software/Hardware/OS availability
➔ Representation in LC collections
➔ Established workflow/functionality
What geospatial formats are currently approved? - Vector

- Preferred:
  - Shapefile
  - Esri File Geodatabase
  - OGC GeoPackage

- Acceptable:
  - GeoJSON
  - KML
  - GML
What geospatial formats are currently approved? - Raster

- Preferred:
  - GeoTIFF
  - OGC GeoPackage

- Acceptable:
  - TIFF with TIFF world file (.tfw)
  - GML in JPEG 2000
  - GML
What geospatial formats are currently approved? Vector and Raster Combined

- Preferred:
  - Esri File Geodatabase
  - OGC Geopackage

- Acceptable:
  - TerraGo GeoPDF
  - Geospatial PDF
GeoPackage is an open, standards-based, platform-independent, portable, self-describing, compact format for transferring geospatial information.

“A GeoPackage is a platform-independent SQLite database file that contains data and metadata tables with names and structures having definitions, integrity assertions, format limitations and content constraints as described in the OGC GeoPackage Encoding Standard from the Open Geospatial Consortium.”

Source: LOC Sustainability of Digital Formats
File type example: OGC Geopackage - Global Factors

→ External dependencies: No dependencies beyond software to unpack the data structure
→ Impact of patents: No concerns.
→ Technical protection mechanisms: Encryption not provided for within the GeoPackage specification
→ Disclosure: Open standard, documented in freely available specifications.
→ Adoption: Not locked into any vendor-specific implementations, robust user groups.
→ Transparency: Can be analyzed with basic tools
→ Self-documentation: Format defines an optional table to hold descriptions of data fields
File type example: OGC Geopackage - Local Factors

➔ **Staff Expertise**: LC staff are familiar with the format (but are not experts!)

➔ **Software/Hardware**: Format is supported in existing software

➔ **Representation in Collections**: None

➔ **Established workflow**: None
The Library of Congress Recommended Formats Statement (RFS) designates GeoPackage as a "preferred" format for:

- GIS Vector Data
- GIS Vector and Raster Combined data
- GIS Raster and Georeferenced Images
Thank you!

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The Recommended Format Statement is currently open for public comment until April 15, 2022.

Please direct any feedback (including questions or comments) about the RFS for GIS, Geospatial, and Non-GIS Cartographic materials to:

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