# Data Integration

Data integration processes for GIS spatial data include data conversion, data merging and data format standardization. These are essential for creating a consistent and unified spatial dataset. Key guidelines include:

- Adopt an open data format like Shapefile (SHP), GeoJSON, or Keyhole Markup Language (KML). Standardizing formats facilitates data exchange between different systems and minimizes data conversion issues
- Data conversion may be required to transform one spatial data format to another to achieve compatibility. Common spatial data formats include Shapefile, GeoJSON, KML, GeoTIFF, and others. Use data transformation and integration tools, like GDAL (Geospatial Data Abstraction Library), to convert data between different formats and systems efficiently
- Data formats should be standardised to ensure consistency in how geographical information is represented and stored across the integrated dataset. Examples includes establishing uniform naming conventions, units of measurement, and attribute values
- Follow recognized spatial data standards like those set by Open Geospatial Consortium (OGC)
- Adopt metadata standards such as ISO 19115 to document data content, quality and other relevant information
- Coordinate reference systems define how spatial data is positioned on the Earth's surface. Ensure that all data layers are correctly aligned with a consistent CRS to avoid spatial discrepancies

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