Standards in action: perspectives from South Africa

Liz Gavin, Elmi Noppe, Antony Cooper

ISO TC211 Standards in Action Workshop
Lisbon
7 March 2001
Three components of presentation

• Developing South African standards based on ISO 19100: context and past experience
• Bringing home ISO 19100: promoting ISO 19100 within the South African geographic information community
• Using ISO 19110 as the basis for the South African National Feature Catalogue
Some South African facts

- Resources dedicated by the Department of Land Affairs to co-ordinate Spatial Data Infrastructure development through the National Spatial Information Framework (NSIF) in 1997
- South African Bureau of Standards (SABS) sub-committee SC71E established in 1999 to deal with geographic information
- 11 official languages
Some South African facts

- A small geographic information community e.g. many municipalities do not currently use a GIS
- Several key spatial data sets created on a national basis: these are increasingly being used in combination with “own” dataset
- Relative isolation from rest of world
  - e.g. continued use of a non-supported South Africa developed software ReGIS
Perceptions concerning standards

- A belief that standards are imposed by Someone Else
- A belief that SA must standardize for economic reasons
- A belief that we can’t standardize
- Standards must be simple
- Standards must be sufficiently complex to cater for my special needs
- Expectation of highly “detailed” standards:
  - e.g. snapping tolerances, symbols used to portray features
Past experience: metadata standardization

- Pre-1997:
  - much talk about metadata within GI community, but not much done about it

- 1998:
  - set up FGDC-type clearinghouse as part of NSIF (called the “SDDF” - Spatial Data Discovery Facility)
  - provided tools for capturing metadata to minimum FGDC content standard
Metadata

• Later:
  – additional interfaces provided to interrogate metadata database
  – tool developed to capture more than minimum FDGC on request by GI community

• 2001:
  – close to 3 000 metadata records available through the NSIF clearinghouse
  – steady increase in use of clearinghouse: weekly average of 251 visits (636 hits) per week over period October 2000 - January 2001
Metadata into the future

• Create 3 levels of profile of 19115:
  – “discovery” level, which will be a subset of
  – the “evaluation” level, which will be a subset of
  – the “application” level

• Provide tools to facilitate the standardized capture of metadata
Bringing home ISO 19100:

Project Star Sign

STudy And Report on Standards In Geomatic Nebula
Background

• Many projects in South Africa that require the integration of different data sets: incompatible formats and lack of standards encountered

• Lack of knowledge of evolving ISO 19100 standards and how these might relate to national standards

• Thus a need for top-down promotion of standardization
Background

• NSIF awarded a contract to develop a report on ISO 19100 standards and their implications for the SA geographic information community

• Aim of project:
  – to assess impact of TC211 standards on South Africa’s geographic information community
  – promote development and adoption of national standards for geographic information
Deliverables

• Meta-database - SSdB
  – fully indexed
  – document library
  – expandable, easy to maintain

• Report
  – simple easy-to-understand
  – more depth than ISO 19102 overview
ISO/TC211 Overview

The following components will be addressed for each ISO 19100 standard:

- Introduction
- Scope
- Understanding this standard
- Cultural and Linguistic Adaptability – CLA
- Implementing this standard in South Africa:
  - Impact
  - Benefits
- South African Profile
Summation

- The report will be used to guide SC71E in the development of national standards

- It will also be used to create awareness and promote the uptake of standards within the community
Using ISO 19110 as the basis for the South African Standard Feature Catalogue

Antony Cooper
CSIR, South Africa

ISO/TC 211 Workshop: Standards in Action
Acknowledgements

- Celeste Kitshoff
- Elaine Olivier
- Hennie Bezuidenhout
- Hina Patel
- Josh Maganbeharie
- Lawrence Modise
- Liz Gavin
- Melinda Potgieter
- Michael Luzibo
- Peter Schmitz
- Pierre du Plessis
- Rudi Erasmus
- Sam Osei
SA Standard Feature Catalogue

- National standard
- Core data sets
- Basis for exchange
- Basis for other catalogues and classification schemes
- As few feature types as possible
- Software tool
Welcome to the Feature Catalogue System

A feature catalogue defines the types of geographical features one would find in a data set, together with their attributes and other things. A standard feature catalogue for South Africa will enable all GIS users to have a shared understanding of the contents of geographic data sets, thereby promoting the dissemination and interoperability of data sets, and reducing confusion and misinterpretation of data.

It is also necessary to differentiate between an instance and a feature type. The instance of a feature in a data set represents a discrete phenomenon in the real (or imaginary) world, and has coordinates and may be portrayed on a map by a particular graphic symbol. These individual feature instances are grouped into classes with common characteristics - feature types. This standard will provide a catalogue of standard feature types (classes). Another standard under development by NSIF, the “Minimum Data Content and Feature Instance Identification Standard”, will address the need for unique identifiers for individual feature instances.

Geographical information is perceived subjectively by users, because they have different needs and applications. Hence, it is quite likely that different users would want to arrange their feature catalogue differently. This standard will provide an unordered, unstructured list of classes (with unique identifiers, names, definitions and attributes), in other words, the catalogue, which each user can structure into a classification system (probably hierarchical) that meets their particular needs. The catalogue will draw on existing catalogues and classification schemes, including SpECS (Spatial Entity Classification Standard).
# Catalogue Information

<table>
<thead>
<tr>
<th>Catalogue Name</th>
<th>Scope</th>
<th>Field of Application</th>
<th>Definition Source</th>
<th>Producer</th>
<th>Functional Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test catalogue for screen dumps 1,28 February 2001</td>
<td>View</td>
<td>View</td>
<td>View</td>
<td>View</td>
<td>View</td>
</tr>
</tbody>
</table>

**View all Feature Types (7 found)**

Search by **Alias**

Keyword

**Add New Feature Types**

<table>
<thead>
<tr>
<th>Feature Type Name</th>
<th>Definition</th>
<th>Code</th>
<th>Alias</th>
<th>Attributes</th>
<th>Authentication</th>
</tr>
</thead>
<tbody>
<tr>
<td>River</td>
<td>View</td>
<td>1</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Enumerator_area</td>
<td>View</td>
<td>2</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Administrative_area</td>
<td>View</td>
<td>3</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Business_management_area</td>
<td>View</td>
<td>4</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>CadastralParcel</td>
<td>View</td>
<td>5</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
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The South African National Spatial Feature Catalogue Standard has been created to provide a mechanism for exchanging spatial data and for identifying uniquely and unambiguously the features in the core data sets for South Africa.
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<td>View</td>
<td>2</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Administrative_area</td>
<td>View</td>
<td>3</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Business_management_area</td>
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<td>Edit</td>
</tr>
<tr>
<td>Cadastral_parcel</td>
<td>View</td>
<td>5</td>
<td>View</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Definition</td>
<td>Authentication</td>
<td></td>
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<tr>
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<td>---------------</td>
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</tr>
<tr>
<td>The smallest geographical area for which demographic statistics are captured. It is the area enumerated by a single enumerator during a census.</td>
<td><strong>Edit</strong></td>
<td><strong>Delete</strong></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Aliases</th>
<th>Authentication</th>
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</thead>
<tbody>
<tr>
<td>Stream</td>
<td>Edit</td>
</tr>
<tr>
<td>Brook</td>
<td>Edit</td>
</tr>
<tr>
<td>Tributary</td>
<td>Edit</td>
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<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Definition</th>
<th>Code</th>
<th>Attribute Values</th>
<th>Value data type</th>
<th>Authentication</th>
</tr>
</thead>
<tbody>
<tr>
<td>admin_area_type</td>
<td>Type of administrative area</td>
<td>2</td>
<td>View</td>
<td>enumerated</td>
<td>Edit, Delete</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Definition</th>
<th>Authentication</th>
</tr>
</thead>
<tbody>
<tr>
<td>An area defined by a statutory body used for gathering or analysing data</td>
<td></td>
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<table>
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<th>Label</th>
<th>Code</th>
<th>Definition</th>
<th>Authentication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health_district</td>
<td>1</td>
<td>The catchment area for a specified hospital</td>
<td>Edit</td>
</tr>
<tr>
<td>CAS_Block</td>
<td>2</td>
<td>For statistical purposes, the smallest subdivision of a police station's area of jurisdiction is a CAS Block (CAS is the South African Police Service's Crime Administration System).</td>
<td>Edit</td>
</tr>
<tr>
<td>Court_jurisdiction</td>
<td>3</td>
<td>The area of jurisdiction of a specific court, be it Magisterial, Regional or High Court</td>
<td>Edit</td>
</tr>
<tr>
<td>Transport_zone</td>
<td>4</td>
<td>An area used for analysing transportation needs</td>
<td>Edit</td>
</tr>
<tr>
<td>Aliases</td>
<td>Authentication</td>
<td></td>
<td></td>
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<td>Delete</td>
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<td>Edit</td>
<td>Delete</td>
<td></td>
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Conclusions

• ISO 19110 is a basis for a feature catalogue
• South African tool for maintaining feature catalogues and classification schemes
• Needed from ISO 19110:
  – Multiple languages (CLA)
  – Sources for individual definitions
  – Collection criteria
Thank you!