

APPLICATION OF DATA STANDARDS ON DATA CAPTURE MANUALS

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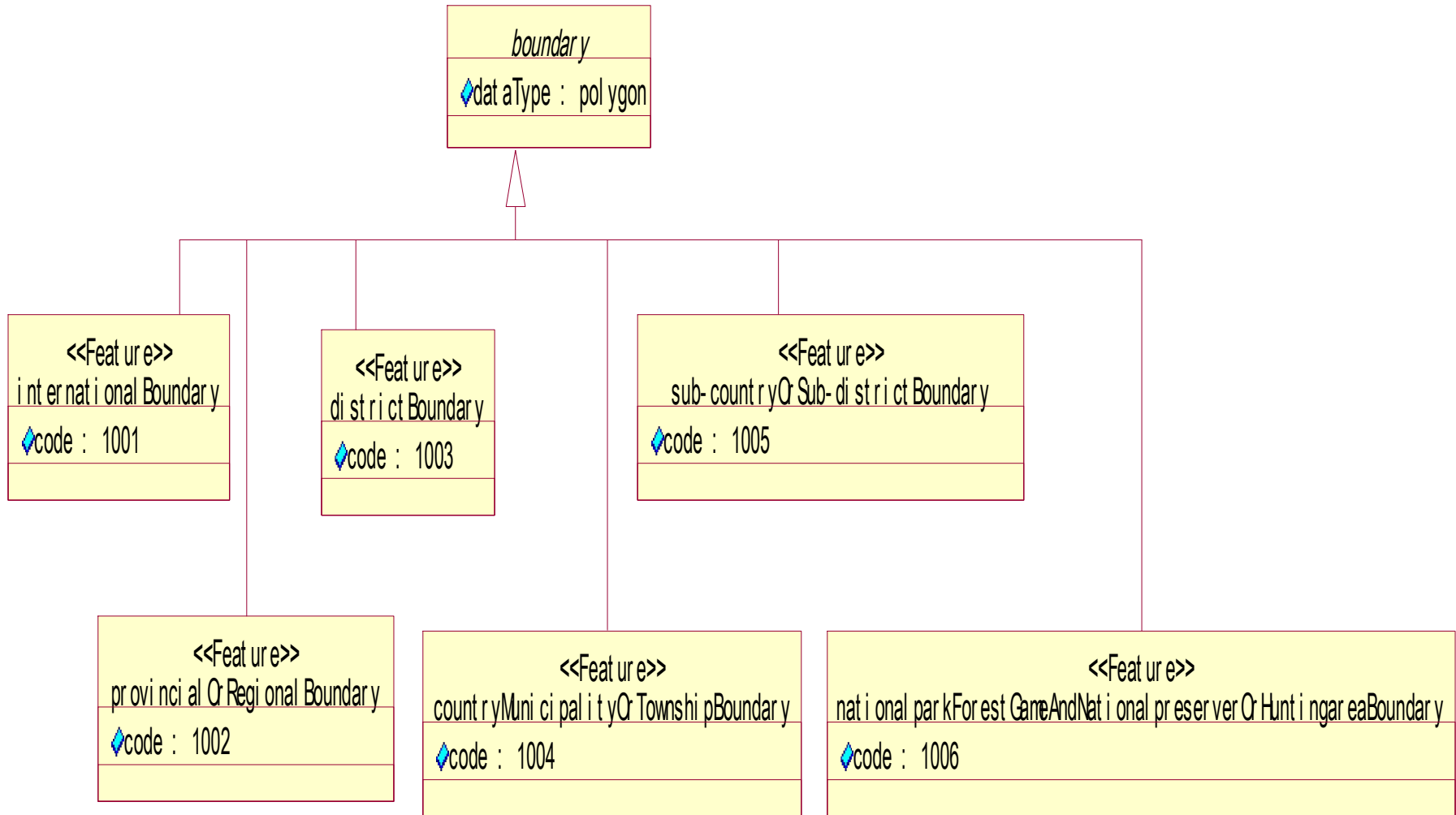
Introduction

- Our main objective is to improve map digitization.
- One way to achieve this is by creating digitizing manuals .
- These manuals have been created according to the specifications based on ISO and KPGIS Standards.

Data content and structure.

- I.S.O has approved the use of UML to classify and express topographic features.
- Each topographic feature package is expressed using UML (Unified Modeling Language) static diagram for application schema.
- According to KPGIS (Kenya profile for geographical information standards) the UML has been applied to describe nine features .i.e. Transportation, administrative boundary, vegetation, hydrology, utilities, control points, elevation, geographical names and parcel boundaries.
- An example of UML static class diagram for application schema is shown below

UML Static class diagram



Documents for application schema

- This is used to express features as shown below:

Boundary package			
Package	Boundary		
Definition	A real or imaginary line that marks where 2 areas are separated from each other.		
Physical features	topographic	International, Provinsial or Regional, District, Country, Municiparity or Township, Game and National Preserve Boundary	
Parent class	None		
Abstract / Concrete	Abstract		
Attributes			
Name	Collection Method	Collection condition	Domain
Data Type:			
code(1):	-	-	-

Spatial reference system

Spatial reference used as per KPGIS is as shown below:

☞ The spatial reference system of National Reserve Map Database is as follows

Compound coordinates reference system	
Identical name	
Coordinates reference system 1 (Horizontal component)	
Identical name	
Domain of validity	The Republic of Kenya
Datum	
Identical name	n/a
Type	n/a
Fixed (False) origin	500,000m Easting, 10,000,000m Northing
Ellipsoid	
Identical name	Clarke 1880 (Modified)
Semi major axis	6,378,249.145326
Inverse flattening	1 / 293.4663076
Prime meridian	
Identical name	Greenwich meridian
Greenwich longitude	39deg 00min East of Greenwich
Coordinate system	
Identical name	Universal Transversal Mercator (UTM)
Type	UTM Projection in Zone 37
Number of dim	2
Coordinate axis	
Name	Northing
direction	Positive to true north at origin
Unit identifier	Meter
Coordinate axis	
Name	Easting
Direction	Positive to true east at origin
Unit identifier	Meter
Coordinates reference system 2 (Vertical component)	
Identical name	the mean sea level of the Indian Ocean
Domain of validity	The Republic of Kenya
Datum	
Identical name	the mean sea level of the Indian Ocean
Type	Altitude
Fixed origin	0.00
Coordinate system	
Identical name	Altitude
Type	
Number of dim	1
Coordinate axis	
Name	Altitude
Direction	Vertical from geoid surface
Unit identifier	meter

Temporal reference system

- GC: The gregorian calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

- EAST: East African Standard Time



Data quality

This deals with data quality requirements and evaluation procedures.

Five elements of data quality used in the specification are:

- a) Completeness
- b) Logical consistency
- c) Positional accuracy
- d) Temporal accuracy
- e) Thematic accuracy

Data Quality

Concept of data quality		
Requirement	Procedure	Record
Identify data quality sub-element	Identify domain of validity of data quality	Define data quality evaluation index

Data Quality Evaluation Table 1

Inspected by:

Date:

Scale Name:

Scale:

Completeness: Excess

Domain of validity	A number of error grid cell or a number of error annotation	A total number of grid cell or a total number of annotation	Error Rate in percentage	Remarks
Boundary, Control point	3	64	4.68%	Error Rate = 0%
Road, Railway, Building Abbreviation Symbol. Other feature, Water area, Surround, open space, vegetation, Topographic feature.				Error Rate ≤ 5%
Annotation				Error Rate ≤ 5%

Data collection

Domain of validity	Field data collection	
Control point, Road	Name	Procedure
	Project, Feature code, feature position No.	Identify known control point and mount the RTK gps receiver on the point .Use rover to pick the desired features as per UML specification.

Data capture

Domain of validity	Data capture	
Control point, Road	Name	Procedure
	layer	Use leica Geo office software to import data from gps to the computer and export to files. Create a layer for each features to be captured.

Accuracy control

Domain of validity	Accuracy control	
Software, Material	Condition	Procedure
	Degree of variation	Prepare accuracy control forms for recording variation

Thematic Map Database

- **Manual for Map Digitization**

National Digital Topographic Database

- **(1/50,000) Manual for Map Digitization**

Topo-Cadastral Map Database (1/10,000)

- **Manual for Map Digitization**

End

- Thank you for listening