Geodetic XML

A consistent exchange mechanism for geodetic data in Australia and New Zealand

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Outline

- Overview of geodetic data management in Australia and New Zealand
- Design goals of eGeodesy project
- Current model development
- Example use uses
- Implementation
- Call for participation
Geodetic data management in Australia

- Responsibility of all Australian Jurisdictions
- No standardised approach for geodetic data management
- Data collection via projects/campaigns and CORS
- High level of variability in:
  - Quality, procedural consistency
  - Instruments, standards, reduction, people
  - DBMS, proprietary binary and text file archives
- Data translation a common burden and prone to error

Geodetic data management in NZ

- Geodetic data managed by one national agency – Land Information New Zealand (LINZ)
- Data stored within Landonline database
- Geodetic survey and physical maintenance mostly carried out via contracts with private firms
- Data submitted via text files on physical media
Design goals for eGeodesy project

- Document process of datum maintenance in UML
- Geodetic data model requirements:
  - Standardise the vocabulary and encoding
  - Facilitate exchange between software products
  - Facilitate distributed network processing
  - Open standards, cross platform, object oriented
- Reduce data duplication and data “silos”
- Enable online geodetic measurement ‘validation’
- Eliminate translation dependency

UML development

- **4D datum**
  - References Aus/NZ ISO 19111:2004
  - Time
- All GNSS & terrestrial geodetic measurements
- Geodetic station and CORS information
  - References SOPAC IGS GNSS site log schema
- Physical Mark and monument information
- Adjustment configuration and results
- Projects and roles
- Quality and standards
Example use cases and benefits

1. Data transfer amongst various applications
2. Collation of data from different custodians
3. Online submission and validation of geodetic measurements
2. Collation of data via Web services

Data archives for CORS sites, geodetic stations, marks, measurements

Web service delivery layer

Internet transfer

Geodetic XML

Client layer

Business application

3. Online submission and validation

Geodetic network authority

Contractor A

Geodetic XML

Contractor B

Network Measurements

Web services

Online validation of network measurements

Get network station information

Update metadata

Get CORS log files

Network adjustment

Network Stations

CORS logs
XML schema implementation

- Technical implementation relatively simple
- Vendor uptake and support may take some time
- Software classes via “XML schema binding”
  - C++, .NET, Java, Delphi, Perl, PHP ...

Call for participation

Your input to the Geodetic XML schema design is welcome!

- XSD (beta version) available for testing
- Who can get involved?
  - All who have an interest in geodetic data management
  - Organisations, geodesists, software developers ...
  - GNSS & survey software vendor participation is strongly encouraged
Thank you!

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