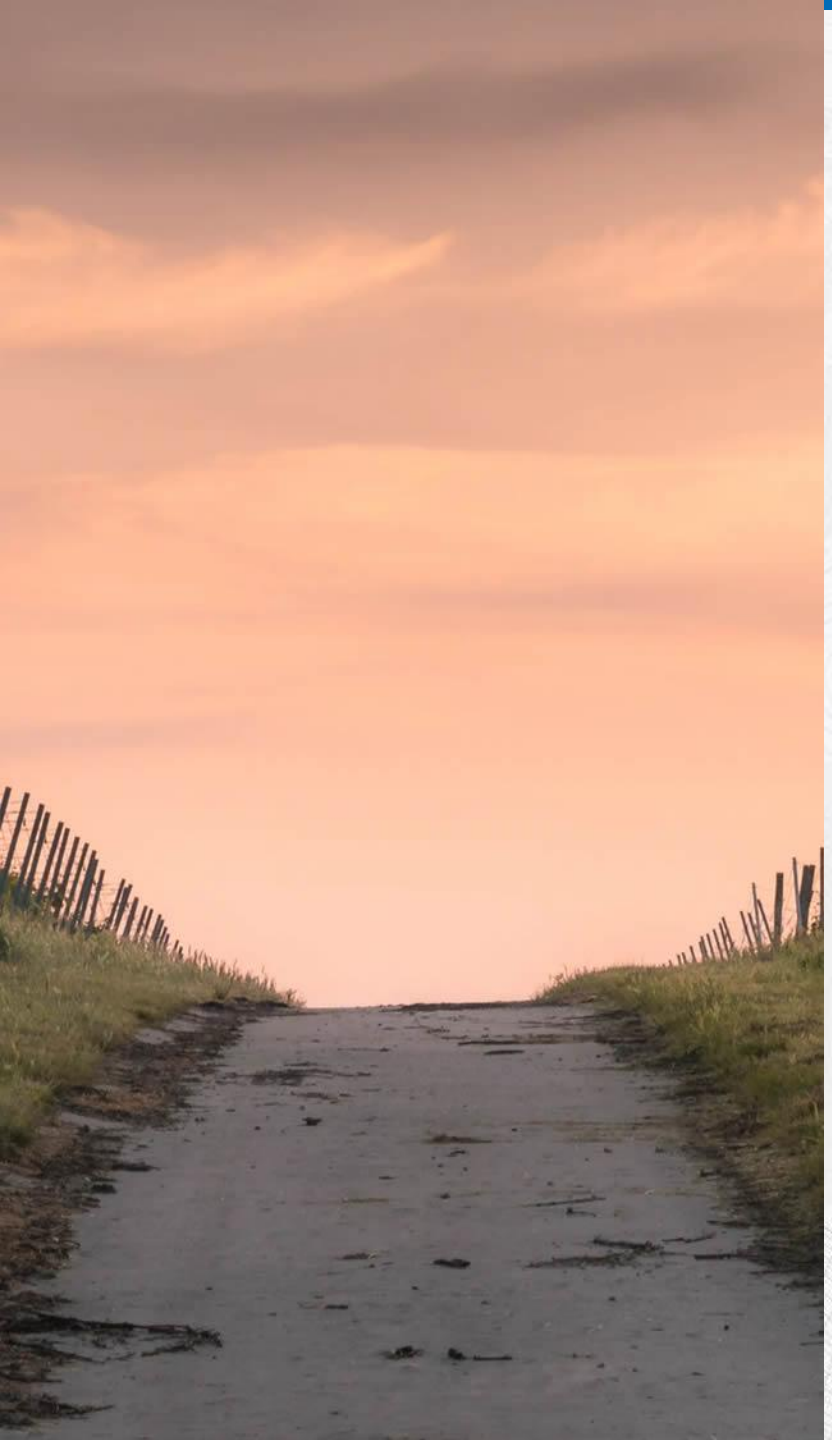
ISO/TC211/AG 5

Harmonized model maintenance group (HMMG)

56th Plenary Meeting Week
Hybrid, New Delhi & Zoom – December 6th 2023

Knut Jetlund, Convenor

ISO Code of Ethics and Conduct



What and why?

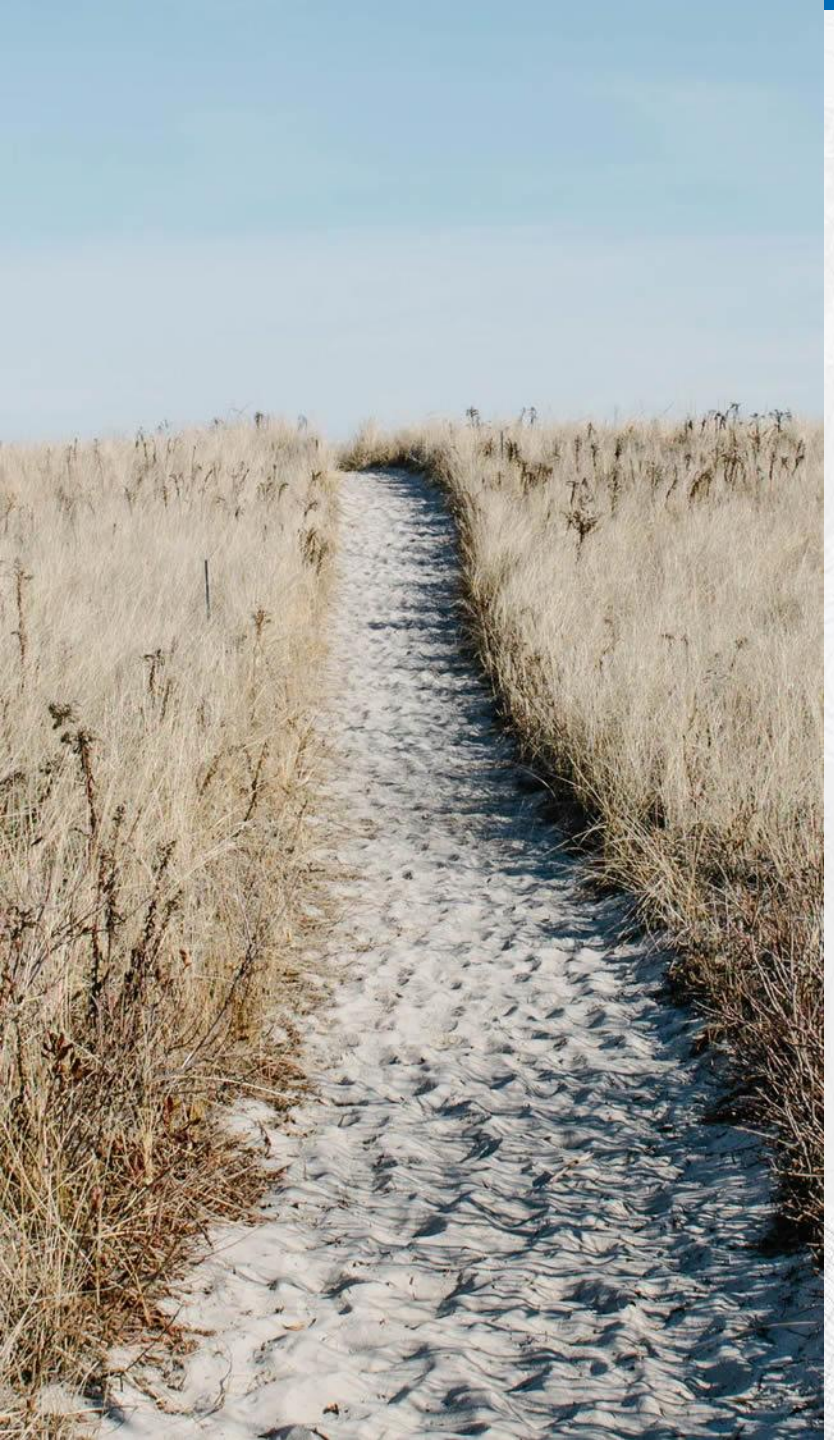
The ISO Code of Ethics and Conduct was adopted by the ISO Council in February 2023, replacing the earliy Code of Conduct.

It set out principles for the conduct of persons acting on or behalf of ISO, including the ISO standards development community - *us*.

The **goal** is that our deliverables benefit the international community over and above the interests of any individual or

organization.

ISO Code of Ethics and Conduct



All ISO actors must uphold and respect the Code of Conduct

- ISO Central Secretariat (ISO/CS)
- National standards bodies (NSBs)
- Individuals representing those member bodies
- ISO committee chairs, committee managers, working group (or any established consensus group under a committee) convenors, WG secretaries, project leaders
- Delegates and experts, including liaisons

Principles

1. Comply with legal and statutory obligations
2. Perform and act in good faith, consistent with the purpose, policies and principles of the organization
3. Behave ethically
4. Promote and enable all voices to be heard
5. Engage constructively in ISO activities
6. Declare actual and potential conflicts of interest and manage them appropriately
7. Protect confidential information
8. Protect ISO assets
9. Avoid and prevent any form of bribery or corruption
10. Escalate and resolve disputes and uphold agreed resolution

Agenda

	Agenda item	Chair
1	Welcome and introduction	HMMG Convenor
2	Roll call	All
3	Status for the Harmonized Model and the Programme of work (https://committee.iso.org/sites/tc211/home/projects/projects---graphic-overview.html)	HMMG Convenor
4	Project Teams' work with the Harmonized Model	HMMG Convenor
5	HMMG work and model maintenance	HMMG Convenor
6a	Other issues: collaborations with OGC and Sparx, Overture Maps	HMMG Convenor
6b	Issues from project meetings	All
7	Liaison activity	HMMG Convenor
8	HMMG Recommendations and report to the plenary	HMMG Convenor
9	Any other business	All
10	Close	All

Status for the HM and POW

Resolution 2023-11 HMMG, GOM, TMG and XMG checks on projects

ISO/TC 211 resolves that all projects (IS, TS and TR) shall establish contact with HMMG, GOM, TMG and XMG during the CD or equivalent stage. All projects shall seek and receive approval for terminology, UML models and resources for implementation from HMMG, GOM, TMG and XMG before moving to DIS, DTS or DTR. Further, all projects shall seek and receive additional approval before submission to FDIS or Publication.
This resolution replaces resolution 891 and resolution 987.

Resolution 777 Creation of harmonized models at an early stage

ISO/TC 211 resolves that every project in ISO/TC 211 that includes a UML model shall create and validate the model in the Harmonized Model before the document becomes a Committee Draft or Draft Technical Specification. In order to support this, the need for a UML model should be explicit in the new work item proposals, and member bodies are encouraged to nominate required expertise.

- UML models shall be in the HM before CD/DTS ballot
- UML models shall be controlled between the CD and DIS stages
- **Documents shall not pass ballot until the review is completed**

- Because…
  - ✓ Derivation of resources for implementation - XSD, OWL
  - ✓ Reuse in other standards and by other stakeholders
  - ✓ Reuse in future revisions
  - ✓ Automated documentation

Status for the HM and POW

- The cooperation with PTs and WGs is still very good ☺
- Projects are working in different ways
  - Depending on technical restrictions and possibilities set by governments and employers.
- More interactive work:
  - Virtual PT and WG Meetings, GitHub and ISO Documents, Email discussions, Cloud sharing…
- Easier to follow and controll the UML work
  - HMMG members can attend more PT and WG meetings.
  - Can participate in discussions on GitHub

Resolution 2023-11 HMMG, GOM, TMG and XMG checks on projects

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Tools for UML modelling

- EA is mandatory for all UML work!
- Use a recent version (EA 15 or 16)

Enterprise Architect

https://github.com/ISO-TC211/UML-Best-Practices

Enterprise Architect Licenses

- Sparx Systems provides free licenses for development and maintenance of the Harmonised Model
  - Experts, Project leaders, Editors, Convenors…
- Requests are handled through the ISO/TC 211 Secretariat

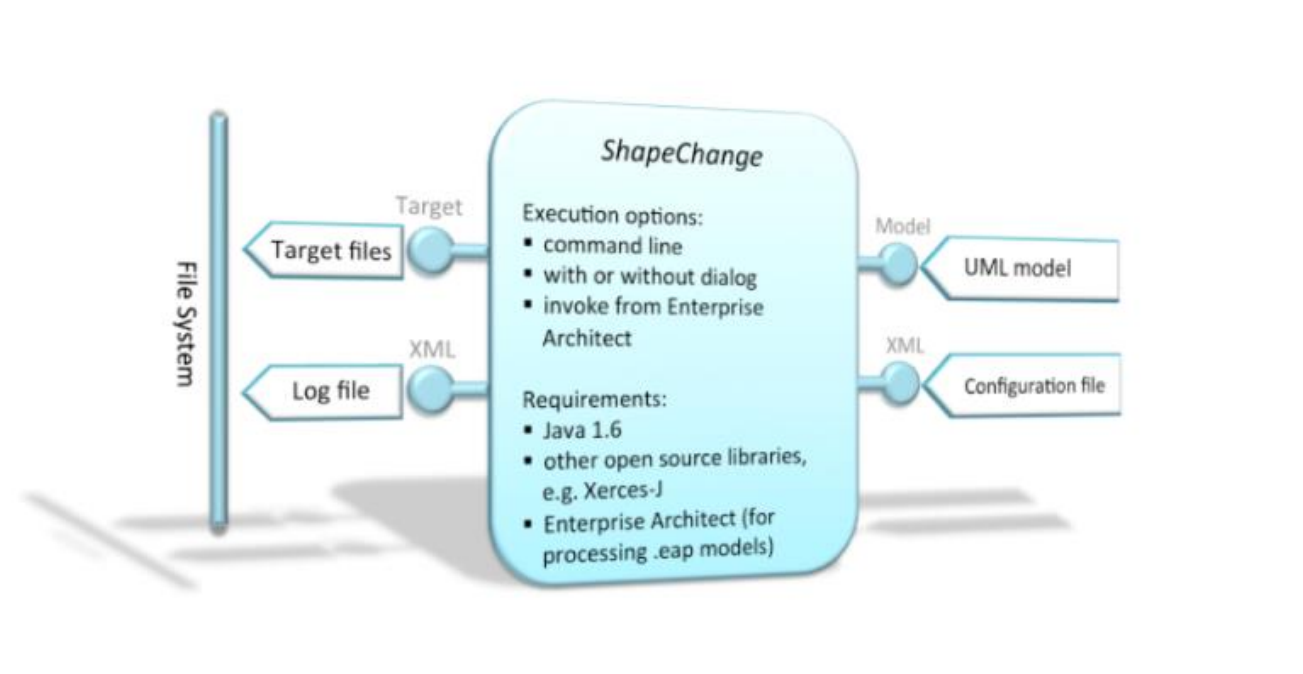
Tools for UML modelling

Enterprise Architect

- EA version 16 64 bit released last year https://sparxsystems.com/products/ea/16.0/index.html
  - Good: New file format .qea – based on SQLite
  - Challenge: Cannot read .eap
  - Can read .eapx if 64 bit Jet DB Driver
  - .eap and .eapx can be upgraded to .qea with wizard
- GitHub resources will be both .eap and .qea until further notice

ShapeChange

- ShapeChange v.3 now supports EA 16.x (2023-11-29)



Enterprise Architect

Accessing and working with the HM

https://github.com/ISO-TC211/HMMG/wiki#accessing-the-isotc-211-harmonized-uml-model

- HM cloud repository (read/write access, for editors)
  - Cloud based, latest versions of all approved changes for all models
- Sparx ProCloud Web (open for anyone)
  - http://iso.sparxcloud.com/index.php
- Sparx ProCloud Reusable Asset Service (RAS)
  - Read access - download published versions of individual model packages directly into any EA project
- GitHub resources:
  - Standalone 'Official' EA project – periodically synchronized with ProCloud
  - Standalone 'Editorial' EA project – periodically synchronized with 'Official' EA project + 'Editorial' Packages

- ProCloud is the primary repository
- EA projects on GitHub are provided for convenience, and are used by several PTs

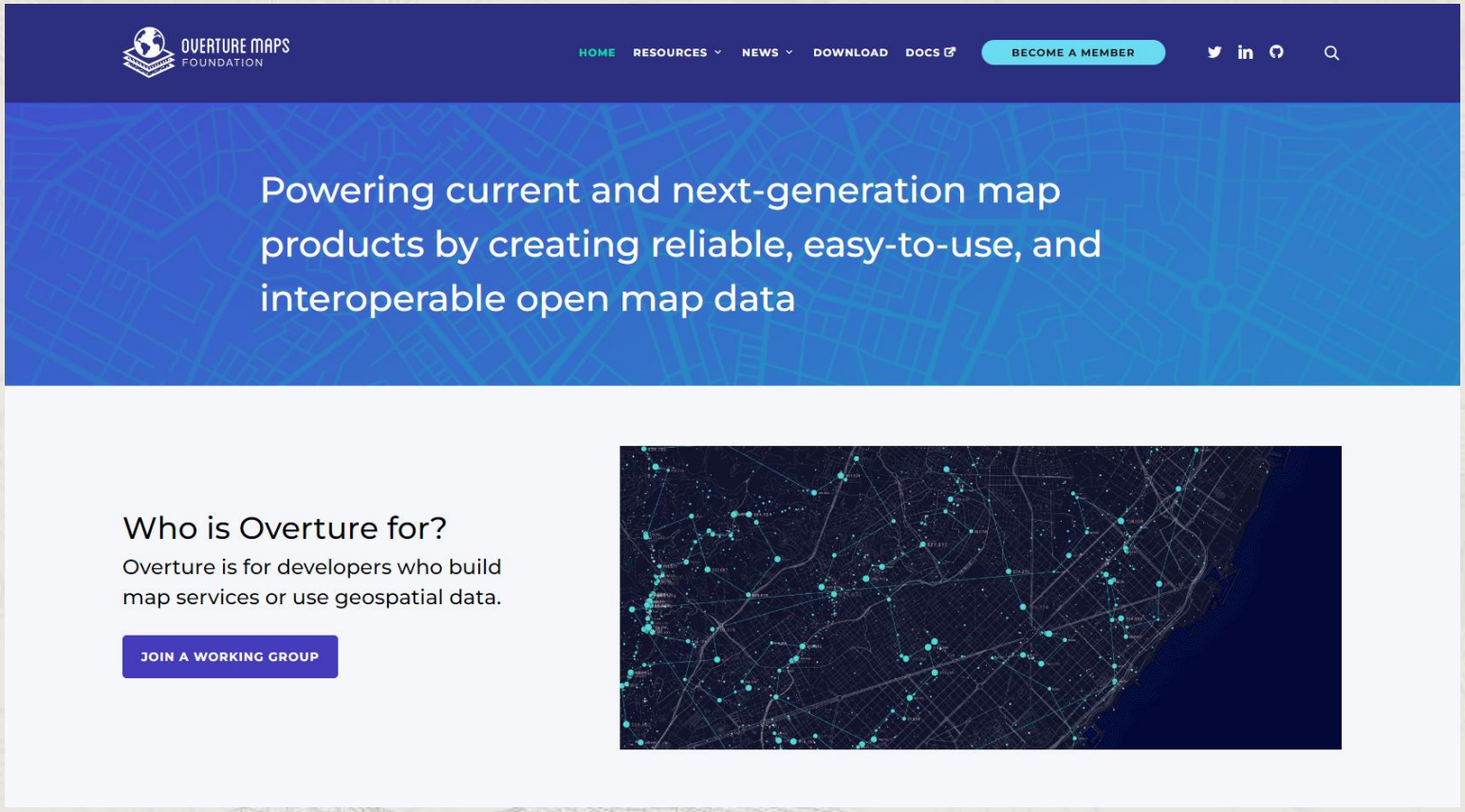
Other issues

- Collaboration with OGC
  - OGC is setting up a ProCloud with a Harmonized OGC UML Model
  - Potential for good integration of models
  - Potential for exchanging experiences

- Sparx follow-up
  - Joint meeting with OGC and Sparx on ProCloud issues
  - Specified several other issues that should bee discussed
  - Formalization of collaboration

Overture Maps - https://overturemaps.org/

Who, What and Why we should care



Kartverket

Who are Overture Maps?

Steering Members

amazon Meta Microsoft tomtom

[Esri joins Overture Maps Foundation]

General Members

esri THE SCIENCE OF WHERE

Contributor Members

geo HYUNDAI MOTOR GROUP addresscloud CYIENT

InfraMappa NOMOKO precisely PTV GROUP

SAFEGRAPH sanborn

Esri joins Overture Maps Foundation

Announcements
February 06, 2023


Lucy Guerra
Deane Kensok

Building and maintaining a global map is a major challenge. Esri is among several organizations who recognize the importance of high quality, reliable, and accessible map data. A new collaboration called **Overture Maps Foundation** has been founded by Amazon Web Services (AWS), Meta, Microsoft, and TomTom to tackle this challenge. The mission of the foundation is to **create reliable, easy-to-use, and interoperable map data** for the globe.

Esri is pleased to announce that we have joined the Overture Maps Foundation and will be supporting the work to create more complete, accurate, and extensible map data that will be available under an open data license. Esri has joined as a General member where we will have the opportunity to join and chair working groups and projects that support the Overture mission and the needs of our user community.

What is Overture Maps?

[Meta, Microsoft, AWS and TomTom launch the Overture Maps Foundation to develop interoperable open map data | TechCrunch]

[Joint Development Foundation Announces Overture Maps Foundation to Build Interoperable Open Map Data (linuxfoundation.org)]

The Linux Foundation has partnered with some of the world's biggest technology companies to develop interoperable and open map data, in what is a clear move to counter Google's dominance in the mapping realm.

The Overture Maps Foundation, as the new effort is called, is officially hosted by the Linux Foundation, but the program is driven by Amazon Web Services (AWS), Facebook's parent company Meta, Microsoft and Dutch mapping company TomTom.

The ultimate mission of the Overture Maps Foundation to power new map products through openly available datasets that can be used and reused across applications and businesses, with each member throwing their own data and resources into the mix.

SAN FRANCISCO. - Joint Development Foundation, an Affiliate of the Linux Foundation, today announced the formation of the Overture Maps Foundation, a new collaborative effort to develop interoperable open map data as a shared asset that can strengthen mapping services worldwide. The initiative was founded by Amazon Web Services (AWS), Meta, Microsoft, and TomTom and is open to all communities with a common interest in building open map data.

Overture's mission is to enable current and next-generation map products by creating reliable, easy-to-use, and interoperable open map data. This interoperable map is the basis for extensibility, enabling companies to contribute their own data. Members will combine resources to build map data that is complete, accurate, and refreshed as the physical world changes. Map data will be open and extensible by all under an open data license. This will drive innovation by enabling a network of communities that create services on top of Overture data.

What is the scope of Overture Maps?

Collaborative Map Building

Sourcing and curating high-quality, up-to-date, and comprehensive map data from disparate sources is difficult and expensive.

Overture aims to incorporate map data from multiple sources including Overture Members, civic organizations, and open data sources.

Global Entity Reference System

Multiple datasets reference the same real-world entities using their own conventions and vocabulary, making them difficult to merge and combine.

Overture Maps will simplify interoperability by providing a system that links entities from different data sets to the same real-world entities.

Quality Assurance Processes

Map data is vulnerable to errors and inconsistencies.

Overture Maps data will undergo validation checks to detect map errors, breakage, and vandalism to help ensure that map data can be used in production systems.

Structured Data Schema

Open map data can lack the structure needed to easily build map products.

Overture will define and drive adoption of a common, well-structured, and documented data schema to create an easy-to-use ecosystem of map data.

Why we should care

- Run by extremely big companies
  - Don’t care about ISO standards?
  - May make ISO standards less relevant?
- Different technologies
  - JSON and YAML Schemas
  - Parquet format
  - ASW and MS Synapse
- Unique identifiers
- Similar concepts

- What we must do:
  - Observe the development
  - Consider the consequences

- What we should do:
  - Invite Overture Maps as liaisson in ISO/TC 211
    - Are they interested?
    - May be more of an OGC task?
  - Core principles and abstract schemas concerns ISO/TC 211

Unique identifiers - https://docs.overturemaps.org/gers/

Global Entity Reference System › Overview

Global Entity Reference System

Overture's Global Entity Reference System (GERS) is a system of structuring, encoding, and referencing map data to a shared universal reference. This will provide a mechanism to easily conflate datasets from different providers based on a specific GERS ID assigned to each feature.

For example, two geospatial datasets that contain a footprint representing the Empire State Building can be easily conflated because both footprints will contain the same GERS ID, referring to the entity: "A Polygonal representation of the footprint of New York's Empire State Building"

A GERS entity is defined by a GERS ID. These IDs are useful to anyone looking to match their data with Overture data. These IDs are stable (within reason) and unique.

Feedback on GERS is welcome on GitHub.

The main components of GERS are:

1. An ever-growing set of *entities* that are a shared reference for a `thing` in the world, where a `thing` could be a segment of road, a city, a store, a building, etc. Multiple *features* in the Overture corpus can and will share the same GERS ID if they are representing the same `thing`.

2. GERS IDs are stable (with a reasonable tolerance of error). Across multiple versions of Overture data, efforts will be taken to ensure the mapping of a real-world `thing` to a GERS ID remains consistent. When stability is not possible, traceability will be provided. Examples:

   - A single road segment is bisected by a new road and becomes 2 road segments: 1 GERS ID → 2 New GERS IDs
   - 1 large building footprint on the map is determined to be 4 smaller buildings when a higher resolution dataset becomes available: 1 GERS ID → 4 new GERS IDs
   - A building is shifted 10m west when higher resolution imagery is made available: GERS ID is preserved for that feature.

id	segment.881faa4ca3fffff-172BB0B0F44AC6EC
updatetime	2023/07/15 01:06:51.969
version	0
level	
subty	
conne	41
road	:[0.0,
bbox.	
bbox.	
bbox.	
bbox.	
layer	
Restr	eed":[
speed	h"]}]
Speed1	{"at":[0,0.163847764],"maxSpeed":[100,"km/h"]}
Speed2	{"at":[0.163847764,1],"maxSpeed":[120,"km/h"]}
Speed3	NULL

GERS ID Structure #27

jenningsanderson started this conversation in **Ideas**

jenningsanderson on Jul 11 — Maintainer

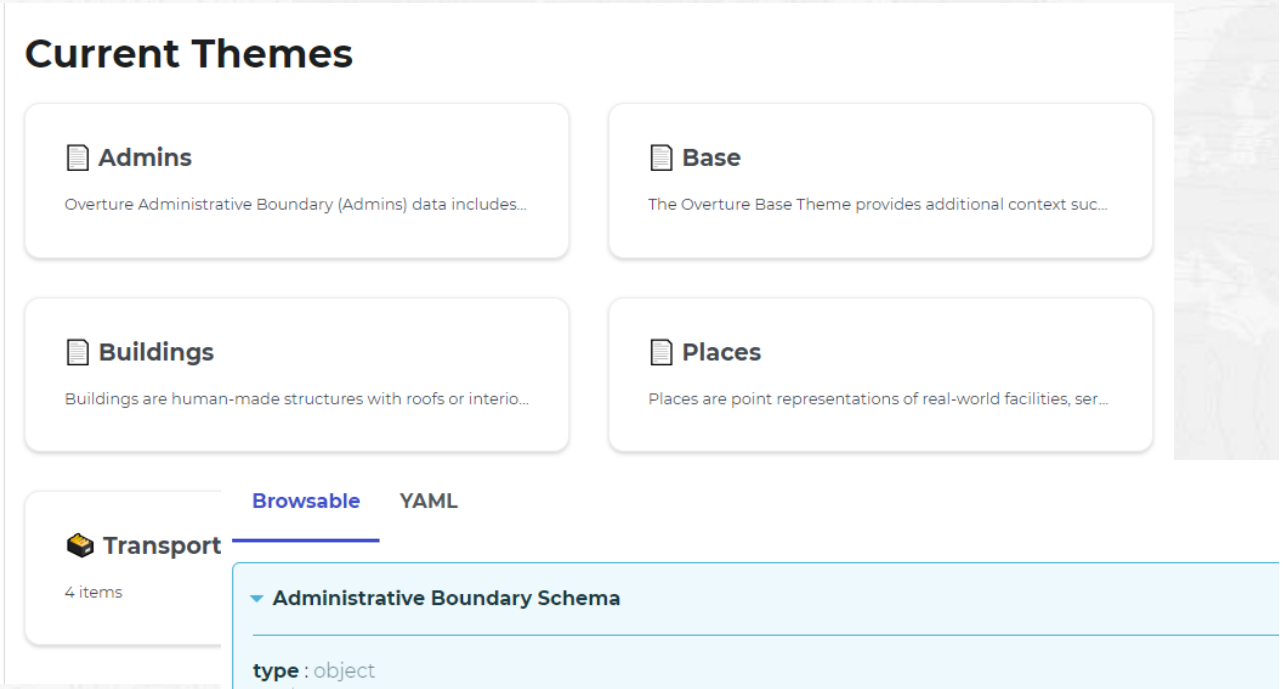
The Global Entity Reference System (GERS) depends on establishing a unique identifier for every entity in the world.

To date, the proposed GERS ID structure would be 128 bits, divided in the following way:

64 bits	n bits	64-n bits
h3 cell ID	theme + type	Unique identifier per theme + type per h3 cell

↑ 3

Data Schemas - https://docs.overturemaps.org/

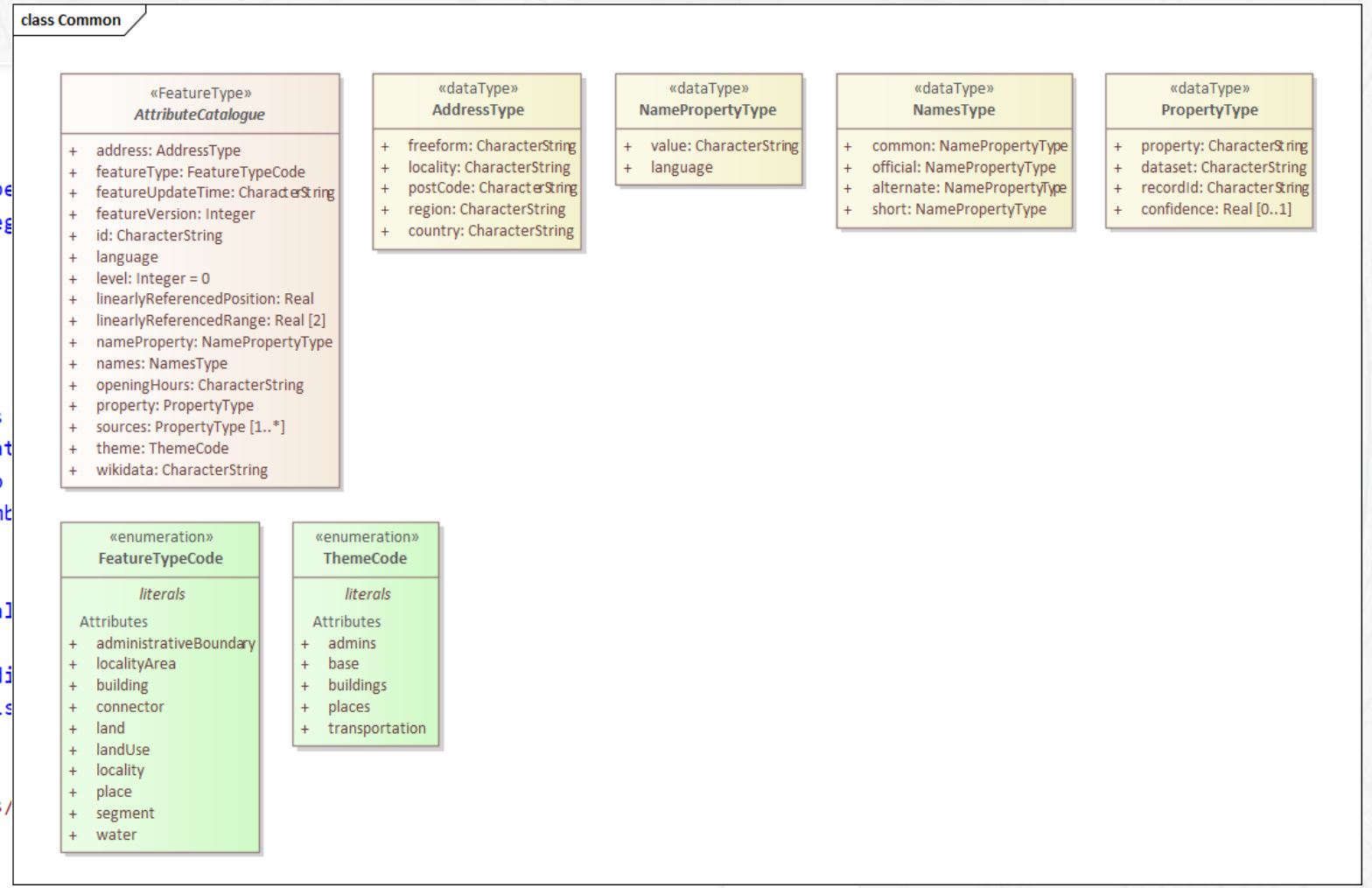


Browsable YAML

```yaml
---
"$schema": https://json-schema.org/draft/2020-12/schema
title: Administrative Boundary Schema
description: >-
  An Administrative Boundary is a border surrounding an Administrative
  Locality. Boundaries are compatible with GeoJSON LineString features.
type: object
properties:
  geometry:
    unevaluatedProperties: false
    oneOf:
      - "$ref": https://geojson.org/schema/LineString.json
  properties:
    unevaluatedProperties: false
    required: [adminLevel]
    allOf:
      - "$ref": ../defs.yaml#/$defs/propertyContainers/overtureFeaturePropertiesContainer
    properties:
      adminLevel: { "$ref": "./defs.yaml#/$defs/propertyDefinitions/adminLevel" }
      maritime:
        description: Flag that specifies if the boundary is maritime (i.e., a boundary at a particular
distance from a jurisdiction's coastline)
        type: boolean
      geopolDisplay:
        description: Optional value that indicates if the boundary needs special rendering logic
        type: string
        enum: [disputed, hidden, visible]
        "$comment": >-
          disputed     = Indicates that an Administrative Boundary is subject of a dispute between two or
more countries
          hidden       = Indicates that the Administrative Boundary must not be display though coinciding
with an Administrative Area
          visible      = Indicates that the Administrative Boundary is to be displayed (i.e. used to
override a maritime=yes flag)
```

YAML and ISO/TC 211 UML

```yaml
      - transportation
  linearlyReferencedPosition:
    description: >-
      Represents a linearly-referenced position be
      the distance along a path such as a road seg
      center-line segment.
    type: number
    minimum: 0
    maxiumum: 1
    "$comment": >-
      One possible advantage to using percentages
      distances is being able to trivially validat
      lies "on" its segment (i.e. is between zero
      this level of validity doesn't mean the numb
  linearlyReferencedRange:
    description:
      Represents a non-empty range of positions al
      linearly-referenced positions. For example,
      represents the range beginning 25% of the di
      start of the path and ending 50% oof the dis
      start.
    type: array
    items: { "$ref": "#/$defs/propertyDefinitions/
    minItems: 2
    maxItems: 2
    uniqueItems: true
    "$comment":
      Ideally we would enforce sorted order of this pair, but sorting
```



Other issues from projects

- Definitions in the UML vs Clause 3
  - Comments from ISO CS for ISO/DIS 19103
- Definitions in clause 3 are for understanding the standard

Name	Definition	Description
IRI	model element identifier in the form of a Internationalized Resource Identifier (IRI)	This identifier that can be used directly in an encoding suitable for the Semantic Web.
	representation of a concept by a	Preferably, the designation is expressed in a natural language.

I received the following comments from the ISO Editorial Manager on ISO/DIS 19103 on the table with the documentation of the UML profile and on the tables showing the description of the model elements of the abstract schema containing the data types.

"The definition in the standard text is in the example of the UML model and not terms meant for the use of reading the standard."

I am more than happy to talk to Alison about this and make her see the difference of the 19103 terms and the UML model example terms.

Let me know if you want me to take this up with Alison.

Best Regards
Mats

Clause 3 and the description tables. What is the best way to reply on these comments? Do we have something I can refer Alison to, something that describes this practice and that it is ok to do so? Any comment or advice is welcome!

Other issues from projects

Liasion activity

Object Management Group (OMG)	1	Mr. Shuichi Nishio Mr. Andrew Watson	Dr. Knut Jetlund	HMMG

- Tried several points of contact with OMG
  - Mr Nisho's address outdated
  - No address for Mr Watson
  - No response on liaison@omg.org
  - No response from Mr Bennet, Technical Director of OMG

- Keep trying!

Suggested resolutions

HMMG Meeting Highlights

Status

- Almost all project models in or on the way into the HM
- Good cooperation with most PTs

Cooperation with OGC and Sparx

- Integration of models
- Exchange of experiences
- Follow up with Sparx on some suggested improvements

HMMG Attendance

- Project leaders, editors and WG convenors must register as HMMG Members and are expected to attend the HMMG meeting

Enterprise Architect

EA is mandatory for all UML work!

Use a recent version (15 or 16)

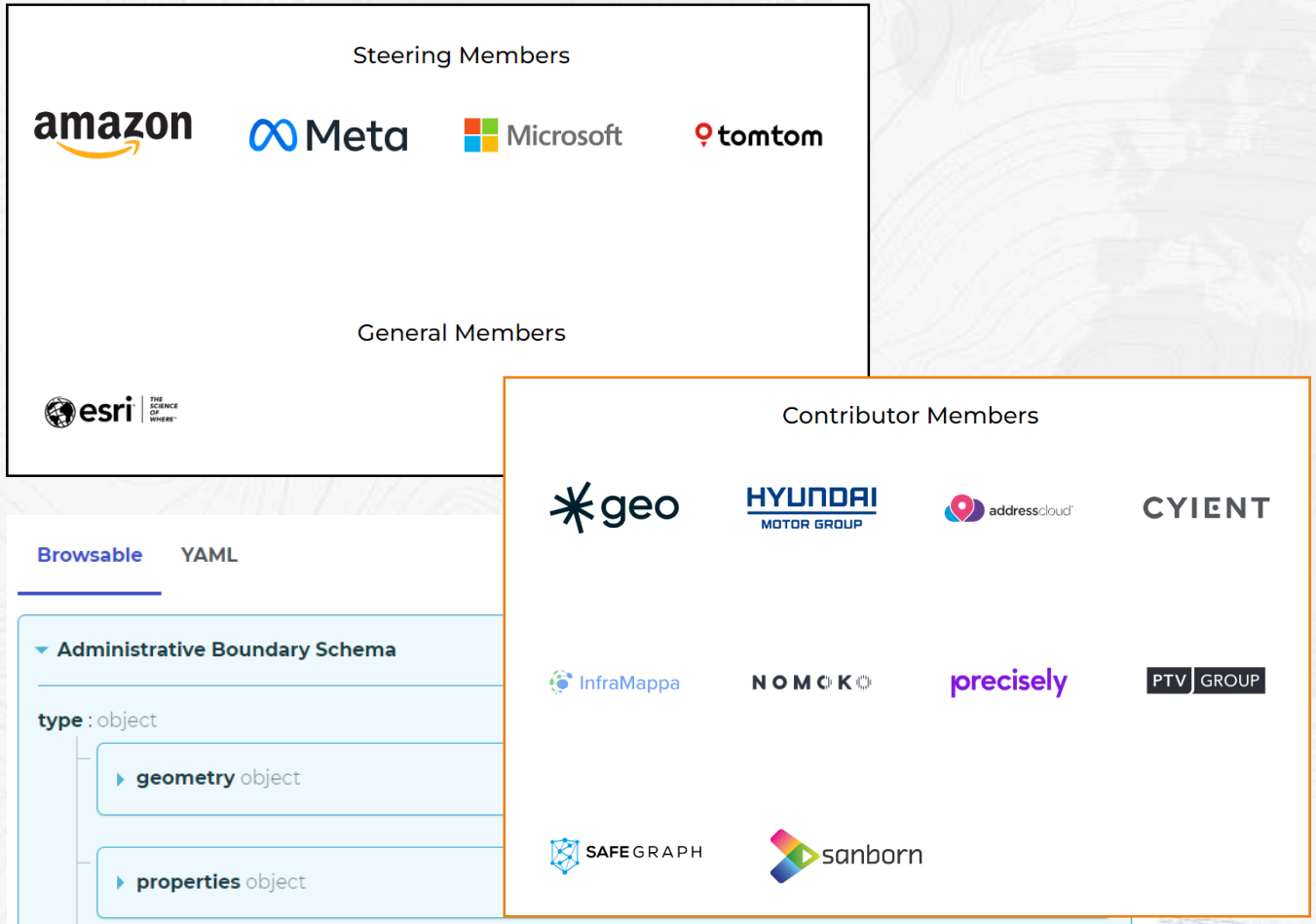
- ShapeChange supports both versions

Sparx Systems provides **free licenses** for development and maintenance of the Harmonised Model

- Experts, Project leaders, Editors, Convenors…

Requests are handled through the ISO/TC 211 Secretariat

HMMG Meeting Highlights



OVERTURE MAPS FOUNDATION

Overture Maps

- Big companies, open data – will be important for the future
- Open schemas in YAML
  - HMMG working on scripts for mapping to ISO/TC 211 UML
- Unique identifiers
- Linear referencing

- ISO/TC 211 need to:
  - Observe the development
  - Consider the consequences

Any other business?