

# The Land Administration Domain Model standard (overview paper)

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FIG Land Administration Domain Model 2013 Workshop  
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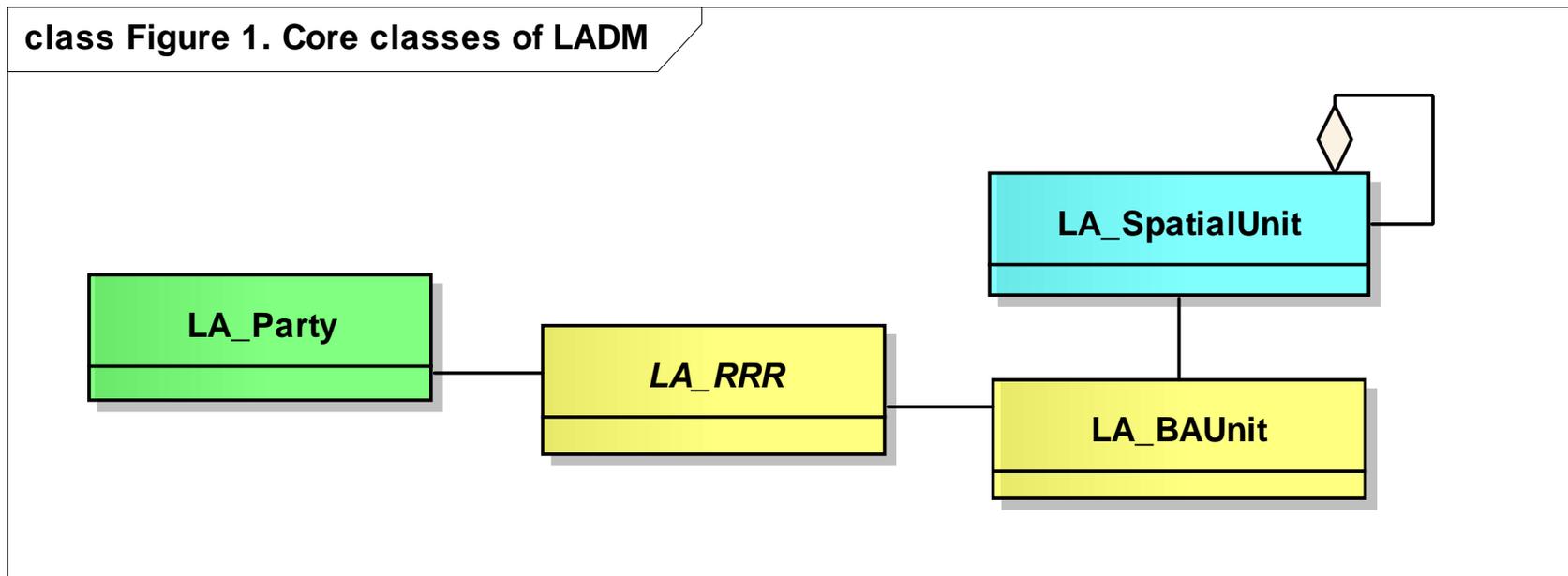


# Contents

1. Introduction
2. Standardization process
3. Conformance testing
4. Standard maintenance
5. Conclusion

# LADM Objectives: simple model

1. Model for building Land Administration systems
2. Basis for communication (i.e. Land Administration terminology)



# LADM development process

1. Start of LADM (2002 – 2006)
  - from FIG Washington D.C. to Munich
2. Start of Standardization (2007)
  - preliminary talks within ISO/TC211
  - the players: FIG, ISO (TC211), CEN (TC287), EC-JRC, UN-HABITAT
  - first proposal
3. Actual standardization (2008 – 2012)
  - NP, WD, CD, DIS, FDIS, IS
  - Versions, comments, voting

# Start of LADM before standardization

<i>Version</i>	<i>Date</i>	<i>Location</i>
<b>Original idea</b>	<b>April 2002</b>	<b>Washington D.C., USA</b>
<b>0.1</b>	<b>September 2002</b>	<b>Noordwijk, The Netherlands</b>
<b>0.2</b>	<b>March 2003</b>	<b>Enschede, The Netherlands</b>
<b>0.3</b>	<b>September 2003</b>	<b>Brno, Czech Republic</b>
<b>0.4</b>	<b>December 2004</b>	<b>Bamberg, Germany</b>
<b>0.5</b>	<b>April 2005</b>	<b>Cairo, Egypt</b>
<b>0.6</b>	<b>March 2006</b>	<b>Moscow, Russian Federation</b>
<b>1.0</b>	<b>October 2006</b>	<b>Munich, Germany</b>



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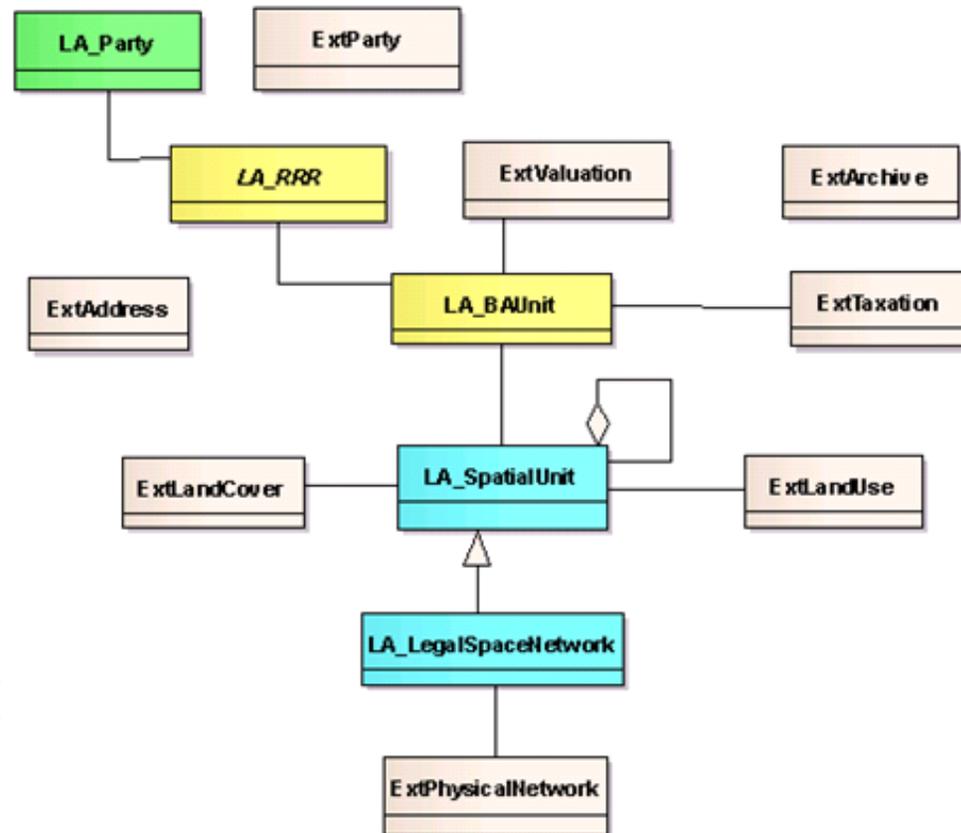
# Requirements, support for:

1. Continuum of land rights
2. Continuum of parties
3. Continuum of spatial units
4. Basic Administrative Units (or Basic Property Unit)
5. A range of data Acquisition methods
6. A range of authentic source documents
7. Transparency
8. History
9. Different organisations
10. Keep data to the source (within SDI)
11. Existing standards
12. Reference system
13. Identifiers
14. Marine Cadastres, 3D Cadastres
15. Quality



# LADM and external classes

- Determine scope LA
- Apply SDI thinking
- Link to external registrations:
  - Address
  - Party (person)
  - Valuation
  - Taxation
  - LandCover
  - LandUse
  - PhysicalNetwork (utility)
  - ...



# Background ISO TC211



ISO/TC 211  
Geographic information/Geomatics

- Over 60 P/O-member countries (participating + observing)
- Liaisons with other organizations; e.g. OGC and FIG
- Over 40 standards, LADM = ISO 19152
- Main phases in standards development process:
  1. Proposal of new work item (NWIP), determination of scope
  2. Development of specifications in Working Drafts (WD) and Committee Draft (CD) in consensus-building processes
  3. Formal approval **International Standard (IS)**, via Draft IS (DIS) and optionally Final Draft IS (FDIS)

# Discussion on the process

- The number of comments grew along the development track...
  - CD: 295 comments (92% accepted)
  - DIS: 398 comments (86% accepted)
  - FDIS: nearly 60 editorial comments (and nearly all accepted)
- Redundancy of information in text, tables, figures and UML-model contributed to the number of comments!
- Nearly 1000 comments → quite cumbersome to manage...
- We did every attempt to resolve comments and negative votes, with the danger that we “tried to please everybody”
  - when one is pleased sometimes the other is disappointed
  - rule: generic (valid for more countries) and improve model

# Editorial Committee ISO 19152

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- Mr. Harry Uitermark, FIG
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- Mr. Marcus Seiffert, Germany

At work...



# LADM Voting Results by ISO/TC 211 P-Members

Voting ISO 19152	New Work Item Proposal  2 May 2008	Committee Draft  12 October 2009	Draft International Standard  27 June 2011	Final Draft International Standard  30 October 2012
Approve:	15	22	26	30
Disapprove:	6	3	2	0
Abstain:	4	4	4	3
Not Voted:	7	3	0	0

# International standard (IS)

## 1 December 2012

- Editing not by project team anymore (TC211), but central ISO secretariat Genève, Switzerland
- Three type of comments:
  1. Subtle differences between text, figures and tables
  2. Normative wording; e.g. replace 'should' by 'shall' (ISO rules)
  3. Annex A, ATS was relatively new and main table A.1 and text were not consistent (and small part of text was forgotten; tests for LA\_level and LA\_RequiredRelationshipBAUnit)
- UML model maintained by TC211 HMMG was updated accordingly

Finally published  
1 December 2012..

INTERNATIONAL  
STANDARD

ISO  
19152

First edition  
2012-12-01

**Geographic information — Land  
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*Information géographique — Modèle du domaine de l'administration  
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Reference number  
ISO 19152:2012(E)

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# ISO 19152:2012

## Geographic information -- Land Administration Domain Model (LADM)

### Media and price

Format	Price	Language	
PDF	CHF 210,00	<input type="text" value="English"/>	<input type="button" value="Add to basket"/>
Paper	CHF 210,00	<input type="text" value="English"/>	<input type="button" value="Add to basket"/>



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# Conformance testing at model level (of e.g. country profile)

1. Any system claiming to be ISO19152 conformant, has to pass the Abstract Test Suite (ATS, Annex A)
2. Conformance can be tested per
  - Package: Party, Admin, Spatial Unit, (subpackage) Survey
  - Level: 1=basic, 2=medium, 3=full
3. Three outcomes: conformant, notConformant, notEvaluated
4. Proof of conformance (executing the test)
  - Analyse inheritance between LADM and derived model or
  - Create mapping table between LADM and derived model

# Conformance testing packages, levels (1 / 2)

package	LADM class		Dependencies
-	<i>VersionedObject</i>	1	
	<i>LA_Source</i>	1	Oid, (as a minimum one of the specializations must be implemented [LA_AdministrativeSource or LA_SpatialSource]), LA_AvailabilityStatusType
Spatial Unit			
	LA_SpatialUnit	1	VersionedObject, Oid,
	LA_SpatialUnitGroup	2	VersionedObject, Oid, LA_SpatialUnit
	LA_LegalSpaceBuildingUnit	3	LA_SpatialUnit
	LA_LegalSpaceUtilityNetwork	3	LA_SpatialUnit
	LA_Level	2	VersionedObject, Oid
	LA_RequiredRelationshipSpatial Unit	3	VersionedObject, LA_SpatialUnit
Surveying			
	LA_Point	2	VersionedObject, Oid, LA_SpatialSource, LA_PointType, LA_InterpolationType
	LA_SpatialSource	2	LA_Source, LA_Point, LA_Party, LA_SpatialSourceType
	LA_BoundaryFaceString	2	VersionedObject, Oid, LA_Point (if using geometry)
	LA_BoundaryFace	3	VersionedObject, Oid, LA_Point (if using geometry)

# Conformance testing packages, levels (2/2)

package	LADM class		Dependencies
Party			Exist only if Administrative Package is implemented
	LA_Party	1	VersionedObject, Oid, LA_PartyType
	LA_GroupParty	2	Oid, LA_Party, LA_GroupPartyType
	LA_PartyMember	2	VersionedObject, LA_Party, LA_GroupParty
Admin			Exist only if Party Package is implemented
	LA_RRR	1	VersionedObject, Oid, LA_Party, LA_BAUnit, LA_Right (as a minimum, this specialization shall be implemented), LA_AdministrativeSource
	LA_Right	1	LA_RRR, LA_RightType
	LA_Restriction	2	LA_RRR, LA_RestrictionType
	LA_Responsibility	3	LA_RRR, LA_ResponsibilityType
	LA_BAUnit	1	VersionedObject, Oid, LA_RRR, LA_BAUnitType
	LA_Mortgage	2	LA_Restriction
	LA_AdministrativeSource	1	LA_Source, LA_Party, LA_AdministrativeSourceType, LA_AvailabilityStatusType
	LA_RequiredRelationshipBAUnit	3	VersionedObject, LA_BAUnit
	LA_BoundaryFace	3	VersionedObject, Oid, LA_Point (if using geometry)



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# Standard maintenance

- As the LADM standard is now being used (and read by further eyes) it is inevitable that further issue will arrive
- These can range from:
  1. detecting and correcting simple text error
  2. via omissions
  3. to further extensions of the standard
- E.g. extension of the legal model conform the proposal of Paasch or informative code lists need further structuring and formalization (see presentation in session 'Additional modelling')
- Use ISO LADM Wiki for communication <http://isoladm.org>
- ISO has standardized standard maintenance procedure

Tags:  + create new tag , view all tags

## Land Administration Domain Model

Welcome to the LADM Wiki!

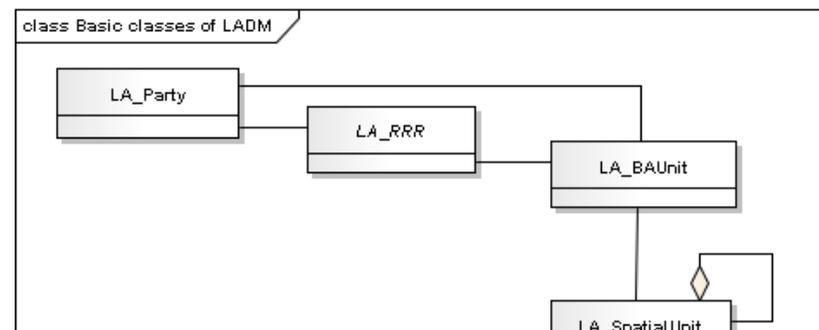
[LADM2013Workshop Website for the 2013 LADM workshop \(24-25 September 2013, Kuala Lumpur, Malaysia\).](#)

The collaborative environment for posting and discussing ISO/TC 211 Geographic Information - Land Administration Domain Model related material (or ISO 19152 in short).

### Available Information

- [IsoDocuments](#)
- [UmlModels](#)
- [CountryProfiles](#)
- [LadmPublications](#)
- [ImplementationMaterial](#)
- [StandardMaintenance](#)

If you want to add material (and do not have an account for this Wiki), send email to "P.J.M.vanOosterom@tudelft.nl".



# Further development

- LADM is conceptual model → technical model
  - Option: collaboration between FIG and OGC: CityGML, LandXML
  - Consider complete development life cycle of rural+urban areas:
    - develop and register zoning plans,
    - design new spatial units/objects;
    - acquire appropriate land/space (after financing);
    - request and provide (after check) permits;
    - construct and build; and
    - use, manage and maintain, etc.
- all related to cadastral registration (Parties, RRRs, Spatial Units)  
and more and more these will involve 3D descriptions.



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# Conclusion

- LADM standardizes both administrative (legal) and spatial aspects
- After WD, CD, DIS, FDIS: LADM now IS!
- Consensus process → acceptance by wide community
- Many country profiles developed in Annex D: Portugal, Queensland (Australia), Indonesia, Japan, Hungary, The Netherlands, Russian Federation, and Republic of Korea
- Use: UN-Habitat (STDM), FAO (FLOSS/SOLA), EU (LPIS+INSPIRE CP)
- Other countries active: Cyprus, Honduras, Guatemala, Canada, Uganda, Senegal, Vietnam, China, Malaysia, Poland, Croatia, Israel, Turkey, Brazil, Kenya, Cape Verde, Bahrain,...
- Conformance testing
- From conceptual model to technical model (CityGML, LandXML,...)
- Land Administration **cornerstone** of the SII (SDI or Geoweb)

# Acknowledgements

- The 19152 project team
- Iain Greenway for submission proposal to ISO on behalf of FIG
- FIG Council 2007 – 2010, under President Stig Enemark and the FIG Council 2011 – 2014, under President CheeHai Teo and FIG's director Markku Villikka (Finland) for continuous support
- Bjørnhild Sæterøy for advice feeling to be at home in ISO/TC211
- John Herring and Serena Coetzee for support within ISO/TC211
- Rod Thompson contributed in development of 2D-3D aspects
- Clarissa Augustinus and Jaap Zevenbergen with STDM
- Many, many others contributed by developing country profiles, performing reviews, participation in discussions and so on



→ Thank you very much!!!!