

# ***The Spanish Cadastre and Property Rights Registry: a smart model of coordinated interaction***

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Spanish Directorate General for Cadastre



GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE HACIENDA  
Y FUNCIÓN PÚBLICA

SECRETARÍA DE ESTADO  
DE HACIENDA

DIRECCIÓN GENERAL  
DEL CATASTRO



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2. Problems & Solutions
3. Conclusions

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- 1. Smart model of coordinated interaction**
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### CADASTRE

- It is an administrative register that impacts on the government-citizen relationship.
- Registration in the Cadastre is mandatory. Notaries and Registrars are obliged to submit information to the Cadastre.
- It's used for the valuation of property for tax purposes.
- It offers a continuous homogeneous GIS for the complete territory.
- It offers open and free access to its information, although it guarantees the protection of private data.

### PROPERTY RIGHTS REGISTRY

- It is a juridical register with substantive legal effects on private relationships.
- Registration isn't necessary to have a contractual entitlement, but is needed to have them protected against everybody.
- It serves to ensure legal safety of property rights and ease of property transactions.
- It is financed by the registration fees by owners protected and by sure Registry Publicity.
- Cadastral Cartography is the basis of its graphic information.

## The new framework of collaboration

- In Spain there are not licensed surveyors and it is not obligatory to mark the division in the land. The agreement to divide and the boundaries are decided by seller and buyer.
- Reforms introduced legally in 2015 established that the description of properties in the Property Rights Registry is to be done by a geo-referenced graphical representation.
- The goal is to offer a better service to citizens, increasing legal certainty and reducing the administrative burden.
- To achieve this goal, it has been necessary to establish a smart model of coordinated interaction between Cadastre and Registry.
- Technology enables solutions that previously were impossible to consider.

## The new framework of collaboration

- The graphic geo-referenced description of the Property Rights Registry is **based on the cadastral cartography**.
- Once the cadastral data have been incorporated in the real estate information in the Property Rights Registry, the delimitation, location and area data are considered to be true for all legal purposes. The Property Rights Registry's record will also indicate if the real estate is coordinated with the Cadastre and the date of coordination.
- In case of disagreement, citizens can provide an “alternative geo-referenced representation” that is then used to update the Cadastre after to pass the appropriate graphical and technical validations.

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## Problems & Solutions

1. How the situation of a parcel is expressed?
2. How to make the information available?
3. What tools can be used for the new parcel boundaries?
4. How to know the new parcels fit the continuous cadastral map?
5. How can notaries use accurate graphical information without exploit a GIS?
6. How the Registry store the graphical information?
7. How communicate the changes to Cadastre?
8. How to show coordination information to the citizens?
9. How to advertise the new model to the stakeholders?



## 1.- How the situation of a parcel is expressed?

The situation of a parcel is expressed with its georeferencing. Georeferencing of a parcel is expressed by including the reference system (ETRS89, REGCAN95), the projection system (UTM) and the coordinates of its vertices (x,y).

The georeferencing information is expressed using the INSPIRE cadastral parcel format (GML format, XML with geographic content).

All the agents that work with real state information in Spain are using the INSPIRE cadastral parcel.

```

- <cp:geometry>
  <!-- Geometria en formato GML -->
  - <gml:MultiSurface gml:id="MultiSurface_ES.LOCAL.1A" srsName="urn:ogc:def:crs:EPSG::25830">
    <!-- srsName codigo del sistema de referencia en el que se dan las coordenadas -->
    - <gml:surfaceMember>
      - <gml:Surface gml:id="Surface_ES.LOCAL.1A" srsName="urn:ogc:def:crs:EPSG::25830">
        - <gml:patches>
          - <gml:PolygonPatch>
            - <gml:exterior>
              - <gml:LinearRing>
                <gml:posList srsDimension="2">269206.53 4805322.37 269208.05 4805321.49 269213.18 4805318.58 269214.32
                4805318.03 269217.09 4805316.71 269215.45 4805312.97 269215.07 4805312 269214.02 4805309.29 269213.49
                4805308.53 269210.73 4805304.61 269208.93 4805301.04 269214.33 4805297.84 269218.83 4805295.18 269222.32
                4805293.13 269220.9 4805290.06 269217.22 4805282.12 269213.26 4805280.82 269193.37 4805292.4 269194.81
                4805295.18 269197.19 4805299.77 269198.41 4805302.03 269200.19 4805305.32 269197.13 4805307.24 269203.13
                4805318.29 269203.85 4805317.84 269206.53 4805322.37</gml:posList>
              </gml:LinearRing>
            </gml:exterior>
          </gml:PolygonPatch>
        </gml:patches>
      </gml:Surface>
    </gml:surfaceMember>
  </gml:MultiSurface>
</cp:geometry>

```

## 2.- How to make the information available?

First, the GML INSPIRE cadastral parcel can be publically obtained at the Electronic Office of Cadastre through free access from the screen query results.

18/05/2016 00:31:09

Sede Electrónica del Catastro

Secretaría de Estado de Hacienda Dirección General del Catastro

Inicio/Desconectar Consulta de Datos Catastrales Ayuda Contactar

Castellano Galego Català English

Consulta y certificación de Bien Inmueble

Cartografía

Consulta Descriptiva y Gráfica

Imprimir Datos

Cartografía Catastro

Otras Cartografías

Croquis por plantas (FXCC), foto de fachada, GML

APLICACIÓN EN EL MUNICIPIO EN EL QUE SE ENCUENTRA ESTE INMUEBLE

10H0001WI

Localización PS CASTELLANA 272  
28046 MADRID (MADRID)

Clase Urbano

Superficie (\*) 12.718 m<sup>2</sup>

Coefficiente de participación 100,000000 %

Uso Oficinas

Año construcción local principal 1996

Datos de la Finca en la que se integra el Bien Inmueble

Localización PS CASTELLANA 272  
MADRID (MADRID)

Superficie construida 12.718 m<sup>2</sup>

Superficie gráfica parcela 4.558 m<sup>2</sup>

Tipo Finca Parcela construida sin división horizontal

Elementos Construidos del Bien Inmueble

Uso	Escalera	Planta	Puerta	Superficie catastral (m <sup>2</sup> )	Tipo Reforma	Fecha Reforma

## 2.- How to make the information available?

Second, the GML INSPIRE cadastral parcel can be publically obtained at the Electronic Office of Cadastre as a service using the WFS INSPIRE cadastral parcel

# Servicios INSPIRE de Cartografía Catastral

**Servicios INSPIRE de Cartografía Catastral**  
Plataforma General del Catastro

**Introducción**

**Licencia de Acceso y Uso**

**Conjunto de datos**

**Servicio de visualización WMS**

### Servicio de visualización WMS

<http://ovc.catastro.meh.es/cartografia/INSPIRE/spadgcwms.aspx>

### Servicio de descarga

Servicios WFS INSPIRE

## 2. How to make the information available?

And third, the cadastral certification, obtained by the title holders and public partners agents, include attached a GML INSPIRE cadastral parcel. The certificate is used by citizens to describe the parcel in notaries and registry.

The screenshot displays a PDF document titled "3226708YH0232N0001E.pdf" opened in Adobe Acrobat Reader DC. The document content is a cadastral certification for a parcel. The main area shows a map of the parcel, which is shaded in light green. The parcel is irregularly shaped and contains several buildings outlined in brown. The map is overlaid on a grid with red coordinate markers on the left side, showing values such as -4.222.390, -4.222.380, and -4.222.370. Above the map, the text reads "PARCELA CATASTRAL" and "Superficie gráfica: 540 m2". To the right of the map, it says "Tipo: Parcela construida sin división horizontal" and "Participación del inmueble: 100,00 %". A north arrow is located to the right of the map. Below the map, there is a legend and a note: "Documento firmado con CSV y sello de la DIRECCIÓN GENERAL DEL CATASTRO CSV: 0127A185PBAH360 (verificable en https://www.sobocastrola.gob.es) | Fecha: ...". The sidebar on the left shows a list of file attachments with names like "COORDENADAS\_3226708YH0232N0001E", "DATOS\_C0VG\_3226708YH0232N0001E", and "COORDENADAS\_3226708YH0232N000".

## 2.- How to make the information available?

- This cadastral certification is an electronic document (PDF format).
- The certificate and its attached file are signed electronically using a Secure Verification Code (CSV). With this code on the document it is possible to access the digital file in the Electronic Office of Cadastre.
- Citizens can be sure that the image on the document reflects the coordinates.
- Applications of notaries and registrars use a web service to access the content of the GML attached file using the code CSV.

Sede Electrónica del Catastro

Inicio/Desconectar Cotejo de documentos

Castellano Galego Català

### Cotejo de documentos

Este servicio permite el cotejo de un documento electrónico mediante su código seguro de verificación (CSV). El Código Seguro de Verificación garantiza, mediante el cotejo en la Sede electrónica de la Dirección General del Catastro, la integridad y autenticidad de los documentos electrónicos del catastro directivo (Artículo 18.1.b de la Ley 11/2007, de 22 de junio, de acceso electrónico de los ciudadanos a los Servicios Públicos). Dicho código, regulado por la Orden HAP/12002/2012, se visualiza en el margen derecho de todas las páginas de los documentos electrónicos emitidos por la Dirección General del Catastro.

- ⓓ Descargue un ejemplo de notificación de Procedimiento de Valoración Colectiva (PVC) con CSV.
- ⓓ Descargue un ejemplo de una Certificación Descriptiva y Gráfica con CSV.

Código Seguro de Verificación

Código Seguro de Verificación:

Acción Volver

CERTIFICACIÓN CATASTRAL DESCRIPTIVA Y GRÁFICA

Referencia catastral: 5078700000000000000

05/10/2012

Secretaría de Estado de Hacienda Dirección General del Catastro

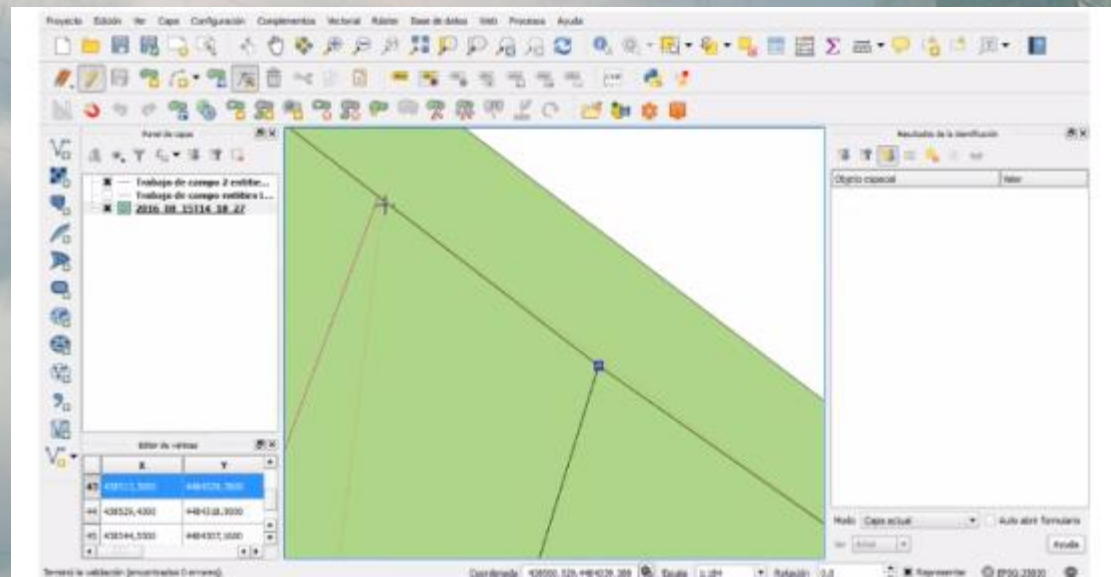
Ayuda

### 3.- What tools can be used for the new parcel boundaries?

- Cadastre has not generated programs that can express the new cadastral parcels in the GML format.
- The market and software development communities have generated them.
- In Internet, there are free and proprietary plugins for generating cadastral parcel GML files for major GIS and CAD programs



Complemento SEC4QGIS para el software QGIS.



## 4.- How to know the new parcels fit the continuous cadastral map?

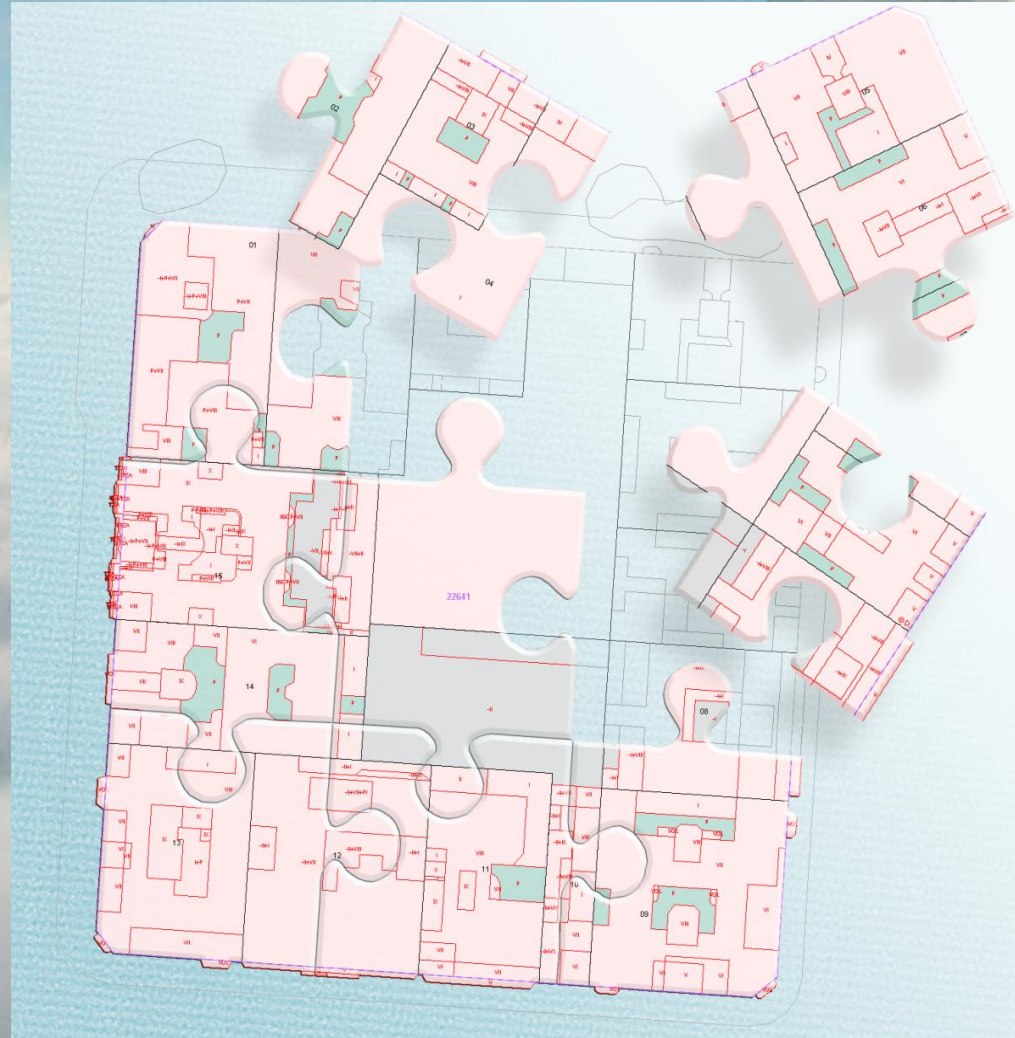
- This geo-referenced representation is used to update the cadastre if it passes the appropriate graphical and technical validations.
- The cadastral cartography is the basis. The technicians are required to represent the reality as an overlay on the cadastral cartography, expressing additionally the twists and displacements that they could appreciate.
- If there is a disagreement with the cadastral information, citizens can provide an alternative geo-referenced representation. It's expressed in the GML cadastral parcel.

## 4.- How to know the new parcels fit the continuous cadastral map?

The technicians, the notaries, the registrars need to ensure that the new parcels fit in the continuous cadastral index map.

It's necessary to validate that the perimeters of the new parcels correspond with those of the old parcels to keep the continuity of the map.

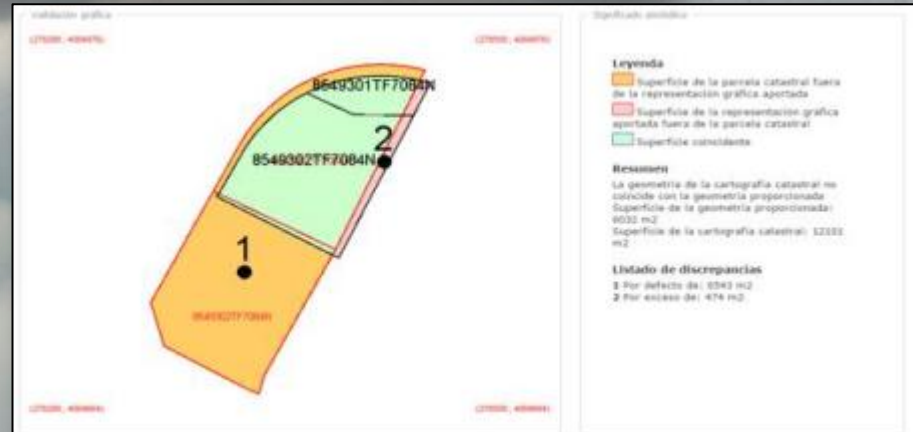
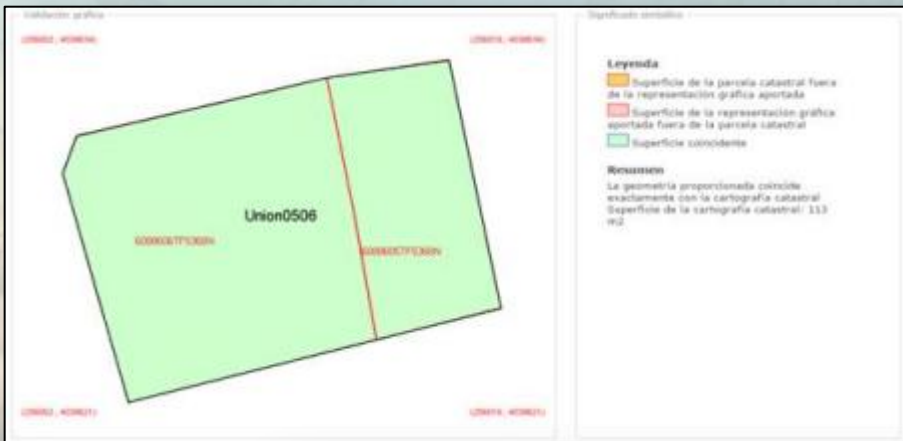
**HOW??**





# 4.- How to know the new parcels fit the continuous cadastral map?

You assure the graphical fit using an interactive service and web service that is called **“Graphical validation report”**, available in the Electronic Office of Cadastre.



## 4.- How to know the new parcels fit the continuous cadastral map?





- The report is an electronic document signed with the secure verification code (CSV) always accessible at the Electronic Office of Cadastre. It has an XML file containing all the information.
- The report avoids the physical exchange of files, shows the new representation and enables the automated capture of its contents preventing transcription errors.
- The result of the technical work could be only this CSV. Notaries don't need to use GIS. Registrars access the graphical content in the XML file automatically.
- The report doesn't validate the legal transactions giving rise to a new configuration of the parcels, and that the parcels comply with the necessary authorizations from the legally mandatory administration or public authority.



# 4.- How to know the new parcels fit the continuous cadastral map?




# 4.- How to know the new parcels fit the continuous cadastral map?

**INFORME DE  
VALIDACIÓN GRÁFICA**

### Parcelas catastrales **afectadas**

La representación gráfica alternativa objeto del presente informe afecta a las parcelas catastrales que se relacionan a continuación. La incorporación de esta representación gráfica en la cartografía catastral podrá producir una alteración de la distribución y superficie de estas parcelas, por lo que se requiere la notificación previa a los titulares catastrales de las mismas en el procedimiento correspondiente.




37136A50405231

Referencia Catastral: 37136A50405231  
Dirección  
FUENTEGUINALDO (SALAMANCA)

**AFECTADA TOTALMENTE**

---



37136A50405230

Referencia Catastral: 37136A50405230  
Dirección  
FUENTEGUINALDO (SALAMANCA)

**AFECTADA TOTALMENTE**

Documento firmado con CSV y sellado de la DIRECCIÓN GENERAL DEL CATASTRO  
 CSV: [https://sede.dgacast.es/validacion/verificador/verificador.php?id=...](#) | Fecha de firma: 02/02/2016






**INFORME DE  
VALIDACIÓN GRÁFICA**

### Parcelas **resultantes**



37136A50405232

37136A50409032

UOK\_30-31

PARCELA UOK\_30-31  
superficie 1370 m<sup>2</sup>

**LINDEROS EXTERNOS:**  
 37136A50405228  
 37136A50405232  
 37136A50409021  
 37136A50409032

**COORDENADA UTM**

	X	Y	X	Y	
1.-	697475.37	4473518.82	11.-	697451.47	4473499.16
2.-	697479.14	4473510.93	12.-	697446.36	4473506.46
3.-	697482.67	4473493.86	13.-	697442.84	4473511.29
4.-	697482.69	4473491.04	14.-	697441.10	4473512.00
5.-	697484.88	4473484.96	15.-	697480.22	4473542.28
6.-	697477.97	4473485.66	16.-	697463.45	4473638.43
7.-	697472.85	4473485.61	17.-	697467.80	4473533.45
8.-	697463.99	4473487.78	18.-	697469.16	4473632.08
9.-	697459.70	4473490.06	19.-	697475.37	4473518.82
10.-	697455.36	4473493.61			

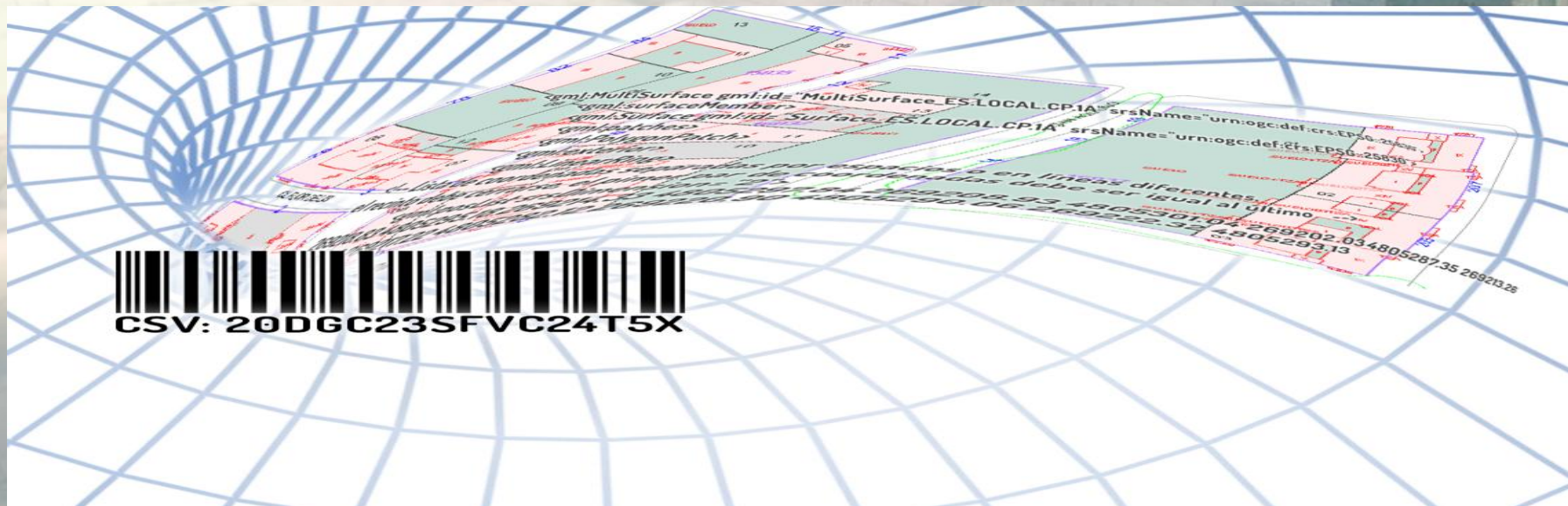
Documento firmado con CSV y sellado de la DIRECCIÓN GENERAL DEL CATASTRO  
 CSV: [https://sede.dgacast.es/validacion/verificador/verificador.php?id=...](#) | Fecha de firma: 02/02/2016

## 5.- How can notaries use accurate graphical information without a GIS?

- The answer is the Cadastral Certification and the Graphical Validation Report !!
- Both of them avoid the physical exchange of files, show the new representation and enable the automated capture of its contents (GML cadastral parcel file) preventing transcription errors.
- Notaries don't need to use a GIS. They incorporate the PDF directly to the deed.
- They trust that the representation on the document reflects the true coordinates of the new parcels. They can represent the content of the report using its CSV code in a service available in the Electronic Office of the Cadastre.
- Notaries send the graphical validation report to the registrars.

## 5.- How can notaries use accurate graphical information without a GIS?

- The exchange of information between the different agents that intervene in the real estate traffic is reduced to the CSV code, just only 16 digits



## 6.- How the Registry store the graphical information?

- Graphical georeferenced representation gets into Property Rights Registry by a GML INSPIRE file or a graphical validation report.
- Land Register takes the UTM coordinates, unique registered estates code and number of registration entry to make a new GML file that is electronically signed. The secure verification code (CSV) now assigned is incorporated to the registration.
- Graphical georeferenced representation registered produces the strong effects of registration.



# 6.- How the Registry store the graphical information?

The image displays three main components of a cadastral registry system:

- Registry Table (Left):** A table with columns for 'NOTAS MARGINALES', 'Nº SECCION REGISTRADA', and 'CRU: 03033000050505 CA N° 8660'. The table contains several rows of text, including 'SECCION 74' and 'SECCION 81'.
- GIS Application (Center):** A desktop application window titled 'Cadastral' showing a map of a residential area. A specific plot is highlighted in blue. The interface includes a toolbar, a legend, and a data table with columns for 'ID', 'EOLPIS', 'EOLPIS MATRIZ', 'FECHA SOLICITUD', and 'OPERACION'. Below the map is a 'Localizador' (Locator) map showing the plot's location within a larger area.
- GeoPortal (Right):** A web-based interface with a search bar, a map, and a legend. The legend includes categories like 'Parcelas SIG', 'Parcelas Operativas', and 'Parcelas Inoperativas'.

## 7.- How to communicate the changes to Cadastre?

- All the exchange of information is made through web services between the College of Registrars and the Electronic Office of Cadastre.
- The use of paper is expressly eliminated !!
- Automatically, without human supervision in most cases, the information in Cadastre is modified and the documents for the citizens are generated.
- Notary and registrars have a feedback. They can communicate the results to the citizens.

The screenshot shows a web application interface for managing land registry cases. The main window is titled "Consulta de Expedientes" and displays a tree view of a case "57595.98/16 - CNTA". The tree view includes sections for "Personas Involucradas (5)", "Etapas (5)", "Documentos de salida (1)", "ACUERDO DE ALTERACION DE TITULARIDAD", and "Referencias Catastrales (1)". The "Etapas" section is expanded, showing a list of steps with dates and codes. The step "22-02-2016 SCEAAA00 NOTC (notificación)" is highlighted, and the text "INICIO DEL PROCEDIMIENTO DE COMUNICACION" is visible below it.

The right side of the interface shows a document viewer with the title "INICIO DEL PROCEDIMIENTO DE COMUNICACION". The document content includes the following text:

**MINISTERIO DE HACIENDA Y ADMINISTRACIONES PUBLICAS**  
GERENCIA TERRITORIAL DEL CADASTRO

Procedimiento: Comunicación de alteración de orden jurídico  
Expediente: 0005795.98/16 Documento: 01174127

**INICIO DEL PROCEDIMIENTO DE COMUNICACION**

La información recibida por este notario número 031 de D.D.P. PATRICIO MONZON MORENO, del municipio Puerto de Santa María, con fecha 24 de octubre de 2015 y número de protocolo 301513416, relativa a los bienes inmuebles que se relacionan (total inmuebles: 1) la determinación de inicio del procedimiento de inscripción, por comunicación, de las correspondientes alteraciones catastrales (especifica: 57595.98/16).

El inicio de este procedimiento extingue la obligación de presentar ante el Catastro la declaración de dichas alteraciones!

*Documento firmado electrónicamente con código seguro de verificación (CSV): 1W12K2922.1CBM590*

Artículo 14.4) del texto refundido de la Ley del Catastro Inmobiliario, aprobado por el R.D. Legislativo 1/2004, de 5 de marzo.  
Artículo 13.2 del texto refundido de la Ley del Catastro Inmobiliario.

# 8.- How to show coordination information to the citizen?

## Certificación Catastral Descriptiva y Gráfica

## Nota Simple del Registro

6135806XH9263NC001AY REFERENCIA CATASTRAL

Se hace constar expresamente que ha quedado inscrita la Representación Gráfica Georreferenciada de la finca matriz de la que ésta procede coordinada con Catastro

**COORDINACIÓN GRÁFICA CON EL REGISTRO DE LA PROPIEDAD**

Registro: DOLORES Código finca registral: 3033000283712 Fecha coordinación: 02/06/2016

## 9.- How to advertise the new model to the stakeholders?

There is a lot of information in our web <http://www.catastro.minhap.es>

- Complete FAQ with different topics (45 Q&A)
- “Guide for the management of cadastral graphical information in real estate market”
- Technical documentation (about services, products and formats)
- Links to the “knowledge communities” that are in the web



**Frequently Asked Questions about the  
Cadastral and Registry Coordination**



**Guide for the management of cadastral  
graphical information in real estate market**

## 9.- How to advertise the new model to the stakeholders?

- Internal and external training courses.
- Training in Latin America (the last week !!)
- Meetings with all the agents involved
- Technical papers

EuroGeographics Annual Review 2015

### INCREASING LEGAL CERTAINTY AND TRANSPARENCY IN SPAIN

Spain is taking significant steps to increase legal certainty and transparency through the introduction of reforms to the mortgage law and revisions to the law on real estate cadastre (Law 13/2015).

The Spanish Cadastre and the Land Registry are two independent but closely related organisations. The Directorate General for Cadastre, dependent on the Finance Ministry, holds physical and economic data of the real estate together with the identification of the cadastral title holder. It also features graphical databases allowing the location and identification of real estate as well as the assignment of a cadastral reference. The Land Registry depends on the Ministry of Justice and constitutes a legal registry of rights that ensures a high degree of legal security in real estate transactions. The Registry stores titles and deeds and is a freely accessible public information service. The Spanish Cadastre is compulsory by law, the Land Registry is not.



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## Technical Conclusions

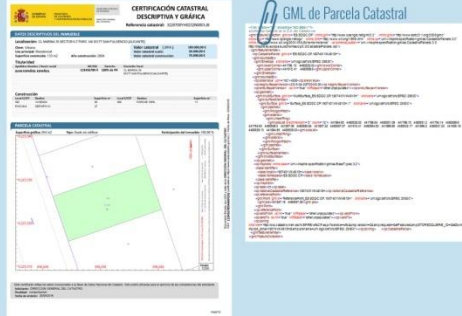
- Technology enables solutions that previously they were impossible to think about (we have been trying to coordinate both institutions since 1906 !!)
- The smart model of coordinated interaction is now working. All the applications, products and services have been developed and work together.
- All stakeholders are actively involved. All the agents in the real state market are using the model. Graphical information is present in real state traffic.
- We have faced technical problems whit a multidisplinary approach (computer engineers, legal advisors, topographers).
- The use of standards facilitates the adoption curve of the solution.

# Technical Conclusions

## COORDINACIÓN Catastro - Registro de la Propiedad

### Con Certificación Catastral

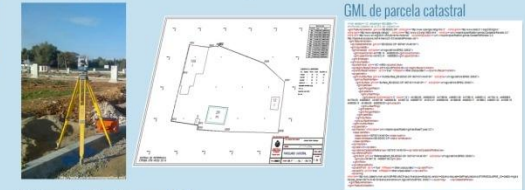
#### Obtención de la Certificación Catastral Descriptiva y Gráfica



The image shows a screenshot of the 'CERTIFICACIÓN CATASTRAL DESCRIPTIVA Y GRÁFICA' form, which includes a map of a plot and a GML file titled 'GML de Parcela Catastral'.

### Con Representación Gráfica Alternativa

#### Captura y generación de ficheros por técnico competente



The image shows a screenshot of the capture and generation process for an alternative graphical representation, including a photo of a plot, a map, and a GML file titled 'GML de parcela catastral'.

#### Validación Gráfica en SEC



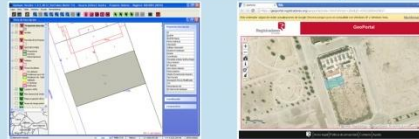
The image shows a screenshot of the SEC graphical validation interface, displaying a map of a plot and a validation status.

#### Obtención de informes de validación



The image shows two screenshots of validation reports. The first report shows a 'POSITIVO' (Positive) result, and the second report shows a 'NEGATIVO' (Negative) result.

#### Inscripción de la Representación Gráfica en el Registro



The image shows two screenshots of the registration process for the alternative graphical representation, including a map and a registration form.

#### Intercambio de información con el Catastro



The image shows a screenshot of the information exchange with the Cadastre, displaying a list of data points.

## FINCA COORDINADA

#### Certificación Catastral Descriptiva y Gráfica



The image shows a screenshot of the 'CERTIFICACIÓN CATASTRAL DESCRIPTIVA Y GRÁFICA' form and a GML file titled 'GML de Parcela Catastral'.

#### Nota Simple del Registro



The image shows a screenshot of the 'Nota Simple del Registro' document, which includes a map and a registration form.



## Business Conclusions

- Technology is not enough. It's necessary a political boost (Commission on the Reform of Public Administration in Spain) that fix the legal framework.
- Cadastre and Registry preserve their autonomy, but work together, offering a good service to citizens.
- The use of the model increase legal certainty and transparency.
- Coordination is aligned with the ideas of Open Government (OGP): accountability (legal certainty), participation, transparency and reducing administrative burdens.
- Coordination is not a specific action, it is a gradual process that is implemented property to property as entries are made in the Property Rights Registry.
- Coordination is a challenge for all actors. The challenge is also an opportunity for progress, enabling new synergies and ways of simplifying and improving.

# ***The Spanish Cadastre and Property Rights Registry: a smart model of coordinated interaction***

**Thank you for your attention !!**