



# **RESO Remote**

## **digital tech summit**

**R&D Workgroup**  
**Greg Moore - Chair**

# S P E A K E R

## Greg Moore – CTO

[Greg.m@rmls.com](mailto:Greg.m@rmls.com)

As part of the senior management team, I provide leadership and general oversight of company goals and activities. I direct and manage development and information technology policies, programs and schedules. I plan and provide for current and future; data processing requirements, computer services, network communications, and management information services to accomplish short-term and long-term company goals and objectives.





# RESO Antitrust Policy

RESO strives to increase competition in the marketplace and will not be a forum for anti-competitive conduct. The RESO Antitrust Policy governs the activities of RESO and its members, including this meeting. A link to the policy was emailed to you with the meeting agenda. Please consult RESO's counsel if you have any questions about the policy.



# Agenda



- **R&D – the workgroup’s role at RESO**
- **Workgroup progress since the fall conference – review**
- New Construction – specific fields
- MLS Datafeed Authorization Information for Data Consumers
- Organization Tour Data
- Media Modifications
- **Photo Metadata**
- **Universal Licensee Identifier (ULID)**
- Business Case review
- Requirements – Critical Success Factors
- Questions for Discussion in the Development Phase
- Implementation Example
- <https://docs.google.com/document/d/1jxOuX0hbl3R5B3v8bVWsh68-WmH5g4MmwjOSfyvkYiU/edit#>
- NWMLS / RMLS Membership Data Pilot



# R&D Workgroup Charter

The RESO Research and Development Workgroup's purpose is to solicit and review submitted business cases and underlying business needs, opportunities and challenges from the real estate industry and identify how RESO can directly contribute benefits for the business needs of the industry with solutions developed through the creation and evolution of RESO standards. The Research and Development Workgroup performs a careful and critical examination of the submitted business cases and coordinates the delivery of potential solutions through standardization with other Workgroups and individual subject matter experts within the RESO community.





# New Construction Specific Fields

A significant number of new construction properties are sold by real estate professionals. Providing fields to specifically define new construction properties in the RESO data dictionary will facilitate MLS' to better support real estate professionals who wish to market and cooperate in the sale of new construction listings in their local MLS system.

A significant number of new construction properties are sold by real estate professionals. Providing fields to specifically define new construction properties in the RESO data dictionary will facilitate MLS' to better support real estate professionals who wish to market and cooperate in the sale of new construction listings in their local MLS system.

## MLS Datafeed Authorization Information for Data Consumers



Providing a real-time, queryable resource for MLS' (Data Providers) to communicate datafeed status to Data Consumers will provide efficiencies for both organizations. Garden State MLS currently provides IDX vendors with immediate email notifications as sites are approved or revoked and also with periodic PDF's which list all approved and revoked sites. In an effort to provide vendors with the ability to more easily automate the processing of this data GSMLS sought to define a new resource in the Data Dictionary.

The new resource would allow vendors to automate the enabling and disabling of client sites and mobile applications. It could provide the vendor with the reason that a client site/app is not enabled. Vendors might then more thoroughly advise their clients of steps that the need to take or simply of the next step in the authorization process.





## Organization Tour Data

Organization sponsored listing tours (caravans) are common throughout the MLS industry. Many MLS systems facilitate local tours for their respective market areas. Issues arise with data and SSO MLS system shares, often requiring the agent to input the listing directly to the MLS system to schedule an Organization tour on the shared system. This creates unneeded burdens and issues for the MLS and Agent with duplicated listings being entered to facilitate an Organization tour.

Developing a data standard for Organization tour data, including metadata for tour dates (days-of-the week), times and geographic boundaries would facilitate the exchange of tour data between MLS systems. This would eliminate the need for Agents to input and maintain the listing in the shared MLS system as well as provide the tour information (metadata) to the originating MLS system. Currently the listing Agent must often search the shared (SSO) MLS system to determine the local date, times and boundaries for the tour their listing is eligible participate in.







# Media Modifications

Numerous listing images and virtual tours uploaded to the MLS, used on broker and agent websites and apps, and syndicated for display on other Internet sites are heavily modified. While this can be a very effective sales tool, some undisclosed modifications may be deceptive. National MLS policies and other steps should be implemented to address the risk this causes.

The MLS industry has a strong interest in the accuracy of listing information, including media. The property should be represented accurately by media, and neither professionals nor the purchaser be deceived. Ideally, we should implement a national MLS policy regarding media modification that uses correct terminology so that it is easily understandable both by real estate professionals and media creators.

## Media Modifications - Enumerations

| Enumeration                                 | Issue  |
|---|--|
| Virtual Staging – Item Addition             | Addition of virtual items that might normally convey with the property, depictions that may misrepresent the condition of the property, or items that may possibly be mis-scaled and may misrepresent room proportions/size.   |
| Decluttered – Item Removed                  | Removing any items may not accurately depict what was behind or under those items. Removing items that the homeowner cannot control like power lines, poor views and unsightly property conditions that might deceive a potential buyer.   |
| Twilight Conversion                         | If the sun is placed in wrong location it may lead the viewer to believe that certain rooms or amenities (e.g., pool) will receive misrepresented amount of sunlight or particular view at a time of day. Changing the color of the sky with no representation of direction would not require this disclosure. |
| Virtual Renovation                          | Undisclosed, this can mislead a buyer into thinking the property has already been renovated and that there are no more expenses necessary to reach that state.   |
| Virtual Representation – To Be Built        | Undisclosed, a buyer may not realize this is an artist rendering and not an actual build.  |
| Virtual Representation – Under Construction | Undisclosed, a buyer may not realize this is an artist rendering and not an actual build in progress.  |
| Model Home                                  |  |
| None  |  |
| Other Media Modification                    |  |
| Virtual Enhancements                        | Visual enhancements may include changing the sky color or greening the grass. But it should be disclosed if an enhancement may be deceptive (e.g. adding green grass where healthy grass cannot grow).   |



## Photo Metadata

**Exif Data** - Exchangeable image file format Settings such as **ISO** speed, shutter speed, aperture, white balance, **camera** model and make, date and time, lens type, focal length and much more.

Saving the exif data is important for copyright, the copyright and the company name that created the image (Author) are exif data elements.

A photographer has won a lawsuit filed against Facebook in Germany. The suit claimed that Facebook's practice of removing EXIF metadata from photos uploaded to the service violated German copyright law. Now, Facebook may be forced to stop the practice or risk paying a fine to photographers in Germany, according to a report [in PetaPixel](#)

20365158-77207949-o

JPG File

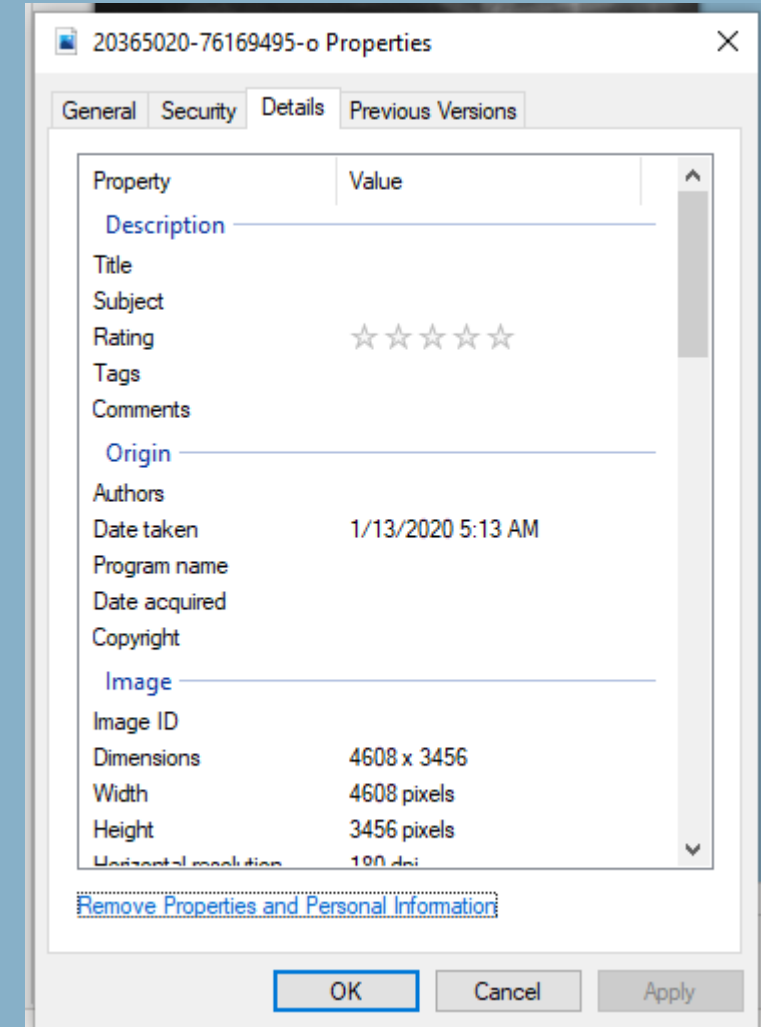
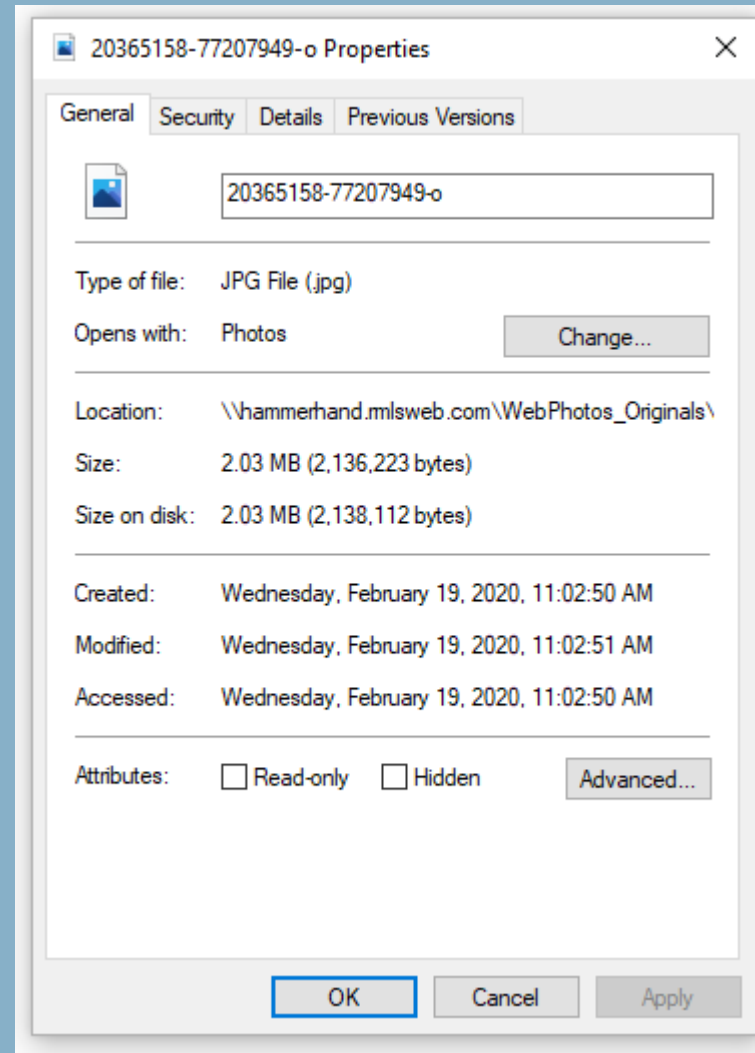


|                    |                      |
|--------------------|----------------------|
| Date taken:        | 2/17/2020 1:14 PM    |
| Tags:              | Add a tag            |
| Rating:            | ☆☆☆☆☆                |
| Dimensions:        | 4032 x 3024          |
| Size:              | 2.03 MB              |
| Title:             | Add a title          |
| Authors:           | Add an author        |
| Comments:          | Add comments         |
| Camera maker:      | Google               |
| Camera model:      | Pixel 4 XL           |
| Subject:           | Specify the subject  |
| F-stop:            | f/1.7                |
| Exposure time:     | 1/5882 sec.          |
| ISO speed:         | ISO-73               |
| Exposure bias:     | 0 step               |
| Focal length:      | 4 mm                 |
| Max aperture:      | 1.58                 |
| Metering mode:     | Center Weighted... ▾ |
| Subject distance:  | 16.8 m               |
| Flash mode:        | No flash, compu... ▾ |
| 35mm focal length: | 27                   |
| Date created:      | 2/19/2020 11:02 AM   |
| Date modified:     | 2/19/2020 11:02 AM   |





# Photo Metadata





# Photo Metadata



20365020-76169495-o Properties

General Security Details Previous Versions

| Property              | Value                    |
|-----------------------|--------------------------|
| <b>Image</b>          |                          |
| Image ID              |                          |
| Dimensions            | 4608 x 3456              |
| Width                 | 4608 pixels              |
| Height                | 3456 pixels              |
| Horizontal resolution | 180 dpi                  |
| Vertical resolution   | 180 dpi                  |
| Bit depth             | 24                       |
| Compression           |                          |
| Resolution unit       | 2                        |
| Color representation  | sRGB                     |
| Compressed bits/pixel | 3                        |
| <b>Camera</b>         |                          |
| Camera maker          | Canon                    |
| Camera model          | Canon PowerShot A4000 IS |
| F-stop                | f/3                      |
| Exposure time         | 1/250 sec.               |
| ISO speed             | ISO-640                  |

[Remove Properties and Personal Information](#)

OK Cancel Apply

20365020-76169495-o Properties

General Security Details Previous Versions

| Property              | Value                      |
|-----------------------|----------------------------|
| Exposure bias         | 0 step                     |
| Focal length          | 5 mm                       |
| Max aperture          | 3.15625                    |
| Metering mode         | Pattern                    |
| Subject distance      |                            |
| Flash mode            | Flash, compulsory, red-eye |
| Flash energy          |                            |
| 35mm focal length     |                            |
| <b>Advanced photo</b> |                            |
| Lens maker            |                            |
| Lens model            |                            |
| Flash maker           |                            |
| Flash model           |                            |
| Camera serial number  |                            |
| Contrast              |                            |
| Brightness            |                            |
| Light source          |                            |
| Exposure program      |                            |

[Remove Properties and Personal Information](#)

OK Cancel Apply



# ULID Business Cases and Critical Success Factors

**Purpose:** Provide a unique ID to every licensed real estate professional, linked to all real estate licenses held, to create efficiency and clarity across all technology systems (association, MLS, franchisor, broker, agent, and consumer-facing technology).

## **Problems ULID Solves – Use Cases**

To begin, it can be assumed that a Unique Licensee ID will be generated by a system to be determined later. How the ULID is applied in practice and the business cases it solves is the first step in defining goals.

Licensee records that currently exist under two or more identifiers within one or more organizations must be associated to create a unified history in a single record. Such association would be useful in terms of evaluating:

### **Specific Stakeholders' Use Cases**

**Consumer-facing web portals** (Zillow, Realtor.com, Homes.com, etc.) need to deduplicate listings and rosters via UPIs, OUIDs, and ULIDs.

**REALTOR associations** need to track agents across associations and MLS changes as well as over time in education, dues, volunteering, compliance, licensure.

**MLSs** need to be able to apply unique keys to subscribers' listings for syndication, other distribution, roster and production reporting.

**Franchisors** need to have access to unique keys to subscribers' listings for syndication, other distribution, roster and production reporting.

**Brokers** need to be able to track agents' personal, listing, and production data across marketing, franchisor, broker back office, and payment systems.

**Agents** need to be able to track their production, purchases, and interactions with customers across their multi-brokerage history.

**NAR** needs to track agents who leave an association, come back to an association, change associations, or are potential targets for membership.





# ULID Business Cases and Critical Success Factors

## Requirements (Critical Success Factors)

### The method MUST:

Generate a truly unique, unchanging, identifier

Be practical to implement

Protect and enhance personally identifiable information (PII). Not contain PII derived from the individual, though may be associated with such information if stored and utilized in a secure manner.

Be capable of capturing and incorporation of non-associated identifiers (manually or via automated linking via probabilistic matching)

Be accepted and utilized as a valuable identifier by licensee, managing and owner brokers, MLSs, data syndicators, IDX and other data consumers (NAR, state licensing entities)

Support one or multiple licenses per individual

Be scalable

Support versioning

Handle multiple license authorities

Support billions of IDs

Be removable: PII as necessary

Be updatable: Accommodate splitting, merging, removal

Work internationally

### The method MAY:

Be memorable

**#RESOremote**

REAL ESTATE STANDARDS ORGANIZATION

# ULID Business Cases and Critical Success Factors



## Questions for Discussion in the Development Phase

- Who will generate the ULID?
- How will the ULID be generated?
- Where should the ULID be generated?
- Should it be generated and/or stored centrally or peripherally?
- If peripherally, what system would ensure uniqueness?
- How will an assigned ULID be disseminated to the correct individual for use?
- What method will be used for capture and incorporation of non-associated identifiers?
- Is PII necessary in the ULID, or in the related data?
- Is this public PII or private PII?
- Is there a way to store PII centrally to support method “musts” and, outside of that, use a generated identifier that cannot be reversed into its components?
- How will errors be addressed: accidental association of identifiers, intentional misuse?
- Are there legal considerations associated with unique identifiers? Communicate the best practices broadly to limit future liability.
- Will some uses of a ULID need to be authenticated and, if so: for whom, for what uses, and how?
- “Responsible member” concept: association, MLS, designated broker, government agency, or other stakeholder responsible for verifying PII and updating licensee information





## ULID Business Cases and Critical Success Factors

### For Discussion: Range of Autonomy, Actors Involved in Generating ULID

- The creation of ULIDs could range from a single entity with a simple process to a host of actors with a complex workflow. RESO should analyze potential solutions based on the complexity of the actors and processes, and the benefits provided as complexity increases.
- Actor involvement potential scenarios in ULID creation, from simple to complex:
- A single entity unilaterally creates a single database which generates ULIDs as “responsible members” (designated brokers?) request them for all of their licensees
- A single entity unilaterally creates a single database which generates ULIDs as individual licensees request them
- A single entity unilaterally creates a single database and unilaterally pre-populates it with ULID data
- A single entity unilaterally creates a single database and pre-populates it in concert with industry partners
- A single entity unilaterally creates a single database and pre-populates it in concert with industry partners and/or government agencies
- Multiple entities jointly create a shared single database, populating it and updating it independently
- Multiple entities create a distributed system to populate and store ULIDs
- More...





# ULID Business Cases and Critical Success Factors

## Simplest Implementation Example for Discussion

**National Provider Identifier (NPI).** Used by healthcare providers, a unique 10-digit code. The number is an intelligence-free numeric identifier (10-digit number). This means that the numbers do not carry other information about healthcare providers, such as the state in which they live or their medical specialty. The NPI number can be obtained online through the National Plan and Provider Enumeration System (NPPES) pages on CMS's website. Ten-digit NPI numbers may be validated using the Luhn algorithm by prefixing "80840" to the 10-digit number. Information is associated with the NPI: the NPS has specific fields and enumerations.

<https://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProvIdentStand/Downloads/NPIfinalrule.pdf>

Importantly, these identifiers are for private individuals, not publicly licensed individuals.

## R&D Links

### Business Cases

<https://members.reso.org/display/RD/Business+Cases>

### Next Meeting

Thursday May 7<sup>th</sup> 2pm eastern-time

<https://global.gotomeeting.com/join/655061925>

To join the R&D workgroup

Click the Join R&D Workgroup link

[members.reso.org/pages/viewpage.action?pageId=983942](https://members.reso.org/pages/viewpage.action?pageId=983942)

# SOCIAL MEDIA

Follow us and see what is happening on our social media sites!  
Real Estate Standards Organization,  
#RESOStandards, @RESOStandards & RESO!

Use the conference hashtag  
**#RESOremote**





# THANK YOU!

Comments or questions?

