

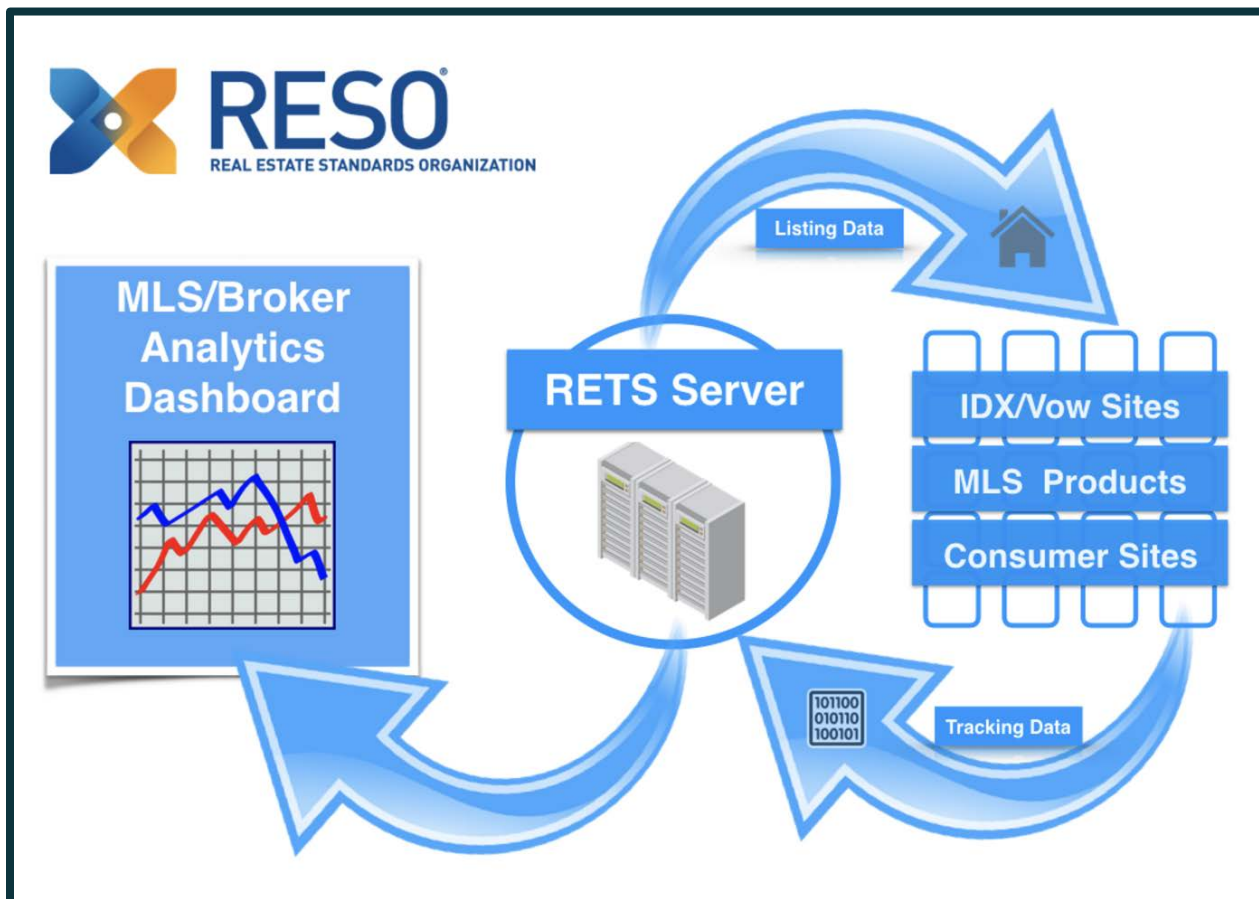


Internet Tracking Resource



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What is the RESO Internet Tracking Resource?

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The RESO Internet Tracking standard is a resource within the Data Dictionary. It provides a standard way to encapsulate end-user behavior on real estate products with the fields defined.

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Understanding the end user activity empowers you to improve your product

- (Unknown Smart Executive)

What are the benefits to tracking the end-user behavior?

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In the RESO community, there are many different stakeholders that benefit from a standard set of fields used in tracking.



- **Brokerage Firm** : gain a better understanding of ROI. They can view where their data is going and what kind of traction it obtains at each stop.
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- **MLS** : evaluate usage within products to better gauge the value it has within their membership.
- **All of RESO** : gain from the introduction of a plug-n-play environment of tracking data. A profound advancement in the time and effort it takes to view your organization’s “global” or “national” tracking footprint.

How is end-user behavior tracked?

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Everything the end-user performs within your product is an “**event**”.

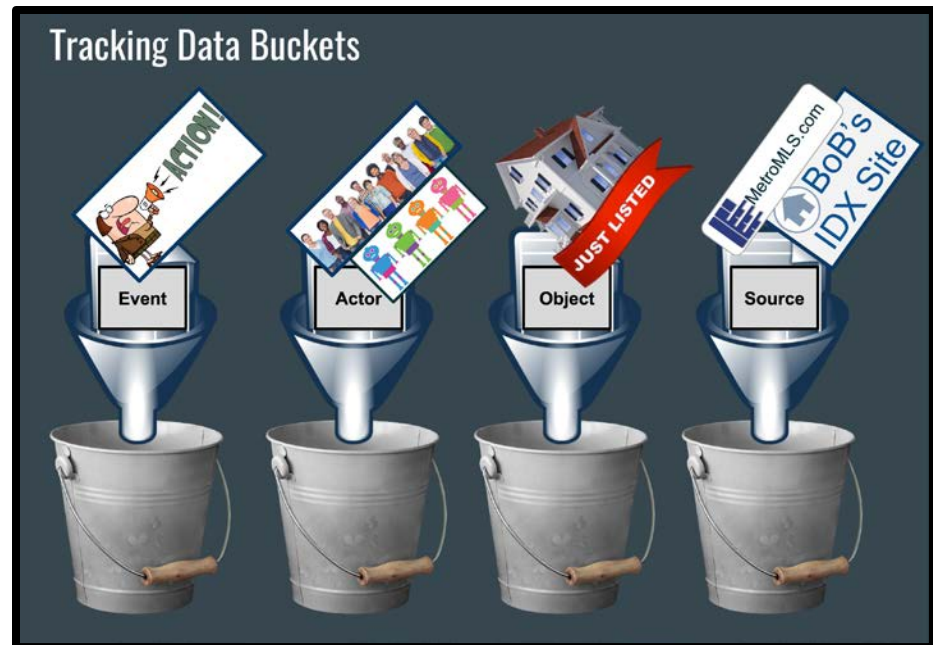
The tracking of end-user **events** can be architected in many different ways. Normally, performed on the server-side via a **tracking pixel** OR some **custom scripting method**. Each end-user **event** is broken down into fields and stored as a **record** within a backend database system, ready

to be queried by some kind of report generating method (i.e. SQL queries into a web page, spreadsheet graphs etc...).

How are tracking events categorized in the RESO standard?

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Each tracking field will fall into one of four (4) distinct event groups (buckets) defined below...



- **Event** : Fields pertaining to the actual event being tracked (i.e. a viewing of a listing)
- **Actor** : Fields that relate to the person OR entity that initiated the event being tracked (i.e. a consumer)
- **Object** : The actual object that is being tracked including fields related to the source (i.e. a real estate listing, a saved search, an open house etc...)
- **Source** : Fields that define the source(s) of the tracking data (i.e. the MLS or a real estate website)

Together, these four (4) groups can store tracking information for hundreds of different events.

For example : The end-user is “*viewing a listing*” on a real estate website. The **Event** is “*viewing*”, the **Actor** is the “*end-user*”, the **Object** is the “*listing*” and the **source** is the “*real estate website*”.

Visit this [URL](#) for a full list of the fields that make up the Internet Tracking resource.

What Kind of Activities can be Tracked?

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It's really hard to say. The current RESO Internet Tracking standard provides **42** unique fields with **64** different enumerations in an **Object-orientated** format. This means that these fields can be combined in many different ways to account for hundreds of unique activities being tracked. This includes activities that are not performed by the end-user (i.e. think BOT or scripts).

For example - here are three (3) unique activities that rely on the same three (3) fields:

The viewing of a listing by a consumer

ObjectType	EventType	ActorType
"Listing"	"Detailed View"	"Consumer"

The viewing of listing by a client

ObjectType	EventType	ActorType
"Listing"	"Detailed View"	"Client"

The viewing of listing by a real estate professional

ObjectType	EventType	ActorType
"Listing"	"Detailed View"	"Agent"

Notice that the **ActorType** field changes value each time. The **ActorType** is an enumerated field in the Internet Tracking resource that can contain one of many different values.

Visit this [URL](#) for a full list of the fields that make up the Internet Tracking resource.





Internet Tracking Groups

: event , ad or , object & source

Let's take a closer look at each tracking group

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The Event fields

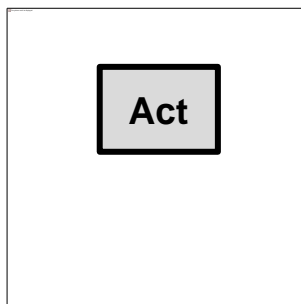
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Fields that are specifically related to the event being tracked.

Here are some of the common fields in the Event group:

- **EventTimestamp** : Every trackable event should have a timestamp. This helps the client-side, who is pulling the tracking data, sort the events into a chronological and useable way.
- **EventType** : This is an open-enumeration field that best describes what event is being tracked (i.e. the viewing of a listing OR the sharing of a listing etc...). This field, in combination with the **ObjectType** field, greatly defines the event that is being tracked. Sources that create their own **EventType** enumerations are encouraged to include an **EventLabel** to inform the data team pulling the tracking data of a non-standard **EventType**.
- **EventLabel** : a short description of the event being tracked. This field is the key communicator to the client-side when the server-side is using an **EventType** that is **NOT** defined in the RESO Internet Tracking standard. For example: EventType="Eat", EventLabel="Object is eating".
- **EventTarget** : Certain enumerations in the **EventType** field will include additional information in the **EventTarget** field. This includes the **EventType** of "Share". In that case, the **EventTarget** could be one of many different defined enumerations including "Facebook", "Twitter" and "SMS".

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The Actor fields

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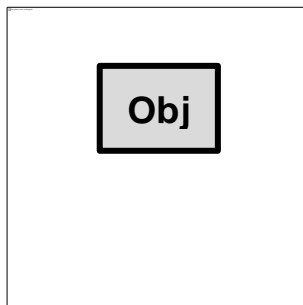
Fields that pertain to the entity that caused the tracking event are stored in the Actor class.

Here are some of the common fields in the Actor group:

- **ActorType** : The “who” or “what” initiated the the tracking event. This is an open-enumerated field that should include either a human (consumer, client etc...) or bot enumeration.
For example : a non-registered end-user is “*viewing a listing*” on a web portal. The **ActorType** = “*consumer*”.
- **ActorID** : This is a field that allows the source recording the tracking data to include a unique ID of the end-user. If the **ActorType** = “Agent”, the real estate professional’s agent ID would be expected.
- **UserAgent** : If the tracking source records the end-user’s browser information, they should include that in this field.
- **DeviceType** : This is an open-enumeration field that provides the source with a way to communicate the **DeviceType** being used by the end-user.

NOTE: The RESO Internet Tracking Workgroup has defined a general list of device types (mobile, desktop etc...). The source is encouraged to parse their own device type categories into the enumerations provides OR make suggestion to the workgroup on adding the missing device type.

Visit this [URL](#) for a full list of the fields that make up the Internet Tracking resource.



The Object fields

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Fields that describe the Object being tracked are grouped in the Object class.

Here are some of the common fields in the Object group:

- **ObjectType** : This is an open-enumeration field that describes the object being tracked (i.e. “Property”, “Listing”, “Open House” or “Saved Search”).

Examples

- The end-user is “*viewing a listing*” on a web portal. The **ObjectType** = “*listing*”.
- The end-user created a “saved-search” in an MLS product. The **ObjectType** = “*saved search*”.

Note: the **ObjectType** of “Property” would be used for instances where a property is the **Object** but it does not currently have a “listing”.

- **ObjectURL** : The exact URL of the **Object** being tracked (when applicable).
- **ObjectID** : A unique ID of the **Object** (i.e. MLS listing ID). This field can be further defined by the **ObjectIDType**.
- **ObjectIDType** : This is an open-enumeration field that provides a label to describe what kind of ID is being used in the **ObjectID** field.

For example : if the **ObjectID** is the MLS listing ID then the **ObjectIDType** should be “MLS ID”.

Visit this [URL](#) for a full list of the fields that make up the Internet Tracking resource.

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The Source Fields

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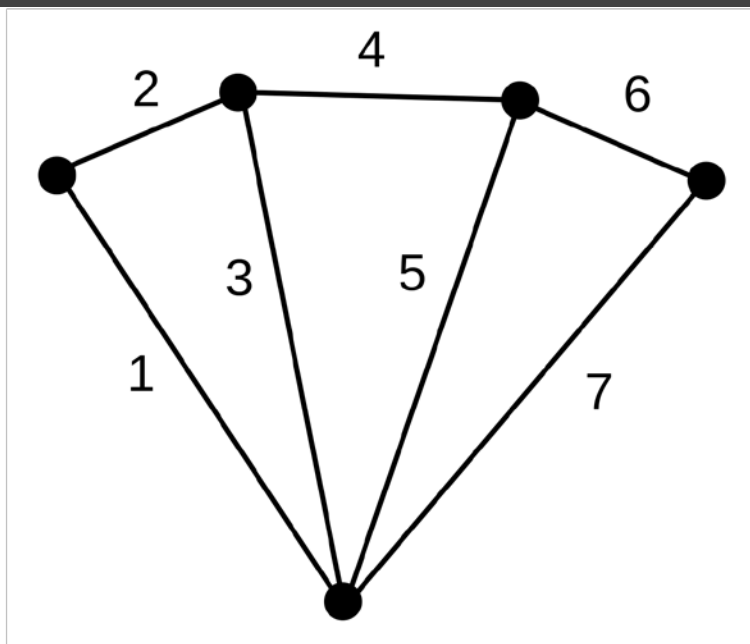
Fields that describe the source that is recording the tracking data.

Here are some of the common fields in the Source group:

- **OriginatingSystemID** : In most cases, this is the ID of the product where the data is being viewed on (i.e. IDX site, portal etc...).
- **SourceSystemID** : In most cases, this is the ID of the system that provided the real estate data for the product where the data is being viewed at.

Note: In the RESO Data Dictionary, the OriginatingSystem is the product that the data is displayed on (i.e. IDX site) and the SourceSystem is the product that the data came from (i.e. MLS RETS Server). The Internet Tracking resource just borrows this method into our standard solution.

Visit this [URL](#) for a full list of the fields that make up the Internet Tracking resource.



Common Use Cases

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Here are some examples of a tracking use case based on the ObjectType of “Listing” including some of the fields recorded

The sharing of a listing by a consumer on Facebook from a cell phone

EventType	EventTarget	ActorType	DeviceType	ObjectType
“Share”	“Facebook”	“Consumer”	“Mobile”	“Listing”

The end-user submitted their information to a form on a broker website

EventType	EventTarget	ActorType	ObjectType
“Submission of Lead Form”	“Broker”	“Consumer”	“Listing”

The registered end-user reacted favorably to a listing

EventType	ActorType	ObjectID	ObjectIDType	ObjectType
“Favorited”	“Client”	123456	“MLS Listing”	“Listing”

Here are some examples of a tracking use case based on the **ObjectType** of “Open House” including some of the fields recorded

The viewing of an Open House by a registered end-user from Milwaukee

EventType	ActorType	ActorCity	ActorState
“Detailed View”	“Client”	“Milwaukee”	“WI”

ObjectID	ObjectIDType	ObjectType
“67FH434FG11GUID123”	“Open House ID”	“Open House”

The viewing of an Open House by a member in an MLS system

EventType	ActorType	ActorID	ObjectID	ObjectIDType	ObjectType
“Detailed View”	“Agent”	“12345”	“67FH434FG11GUID123”	“Open House ID”	“Open House”

Here are some examples of a tracking use case based on the **ObjectType** of “Saved Search” including some of the fields recorded

The creation of a saved search by a registered end-user

EventType	ActorType	ObjectID	ObjectIDType	ObjectType
“Object Created”	“Client”	“67FH434FG11GUID123”	“Saved Search ID”	“Saved Search”

The running of saved search by a scheduled script in an MLS system

EventType	ActorType	ObjectID	ObjectIDType	ObjectType
“Object Ran”	“Bot”	“67FH434FG11GUID123”	“Saved Search ID”	“Saved Search”



Questions on Internet Tracking

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Feel free to reach out to the RESO team and community with any questions, concerns or ideas on improvement. Here are some of the items to check on your todo list:

- **Become a member of the RESO Internet Tracking Workgroup** : This is the single most important way to learn about the Internet Tracking solution and provide input on how to make it better.

The Internet Tracking Workgroup meets on the third Wednesday of each month (via conference) call plus in-person meetings at least twice annually.

Information on the workgroup, including meeting notes, documentation and the group's discussion board can be found in the RESO collaboration system on [RESO.org](https://www.reso.org).