



Vendor Client Setup for Paragon's OpenMLS RESO API

Introduction

We recommend reviewing any current RESO specifications on their [GitHub site](#). This will give you an understanding of how RESO API works, as it's a strict subset of Microsoft Web API. Any RESTful client can be used, but **we do not recommend** using services that store credential and data in third party storage. For example, Postman requires an account to save requests and collections.

Authentication Setup

| Parameter/Setting | Value |
|--------------------|---|
| Authorization Type | OAuth 2.0 |
| Grant Type | Client Credentials with Basic Authentication |
| Access Token URL | https://MLSid.paragonrels.com/OData/MLSid/identity/connect/token |
| Client ID | Provided by MLS Organization (MLS, Board, or Association) |
| Client Secret | Provided by MLS Organization |
| Scope | OData |

Time sensitive bearer tokens are issued through our identity server, does not support Auto-Refresh feature. The token in the response will look like this.

```
{"access_token":"token_string","expires_in":####,"token_type":"Bearer"}
```

Tokens should be sent in the `--header`. We do not support passing tokens passed in the URL.

Managing Credentials

Paragon OpenMLS credentials are managed by the MLS organization (MLS, Board, or Association). Representatives of the MLS organization should be contacted regarding access to all resources in RESO RETS and API. Each feed (IDX, VOW, BBO etc.) will require its own feed and set of credentials. For the list of available resources, please contact the MLS organization.

Service Document

OData and RESO require a Service Document accessible from the ServiceRoot. Any metadata related to the data can be found there. In all examples SystemName and DataSet are interchangeable. Each MLS organization or customer may have different DataSets they'll provide access to.

```
GET https://MLSid.paragonrels.com/Odata/MLSid/SystemName/$metadata
```

Per the specifications by the corresponding governing authorities, here are *some* of the pieces you'll find in the OpenMLS Service Document.

| Entry | Use in OpenMLS |
|-----------------|---|
| Edmx | Entity framework. Holds OData version number. Currently 4.0. |
| EntityContainer | Holds EntitySets or AssociationSets, and has a unique name |
| EntitySet | Holds \$sort and \$filter restrictions in records, and has unique EntityType |
| EntityType | Defines RESO define resources. Holds a key and property records for each field. |
| Type | Defines the Edm type |
| Nullable | True/False, could be null |
| MaxLength | Maximum length of the field |
| Annotation | Provides additional data, like LookupName value |
| Function | Allowable functions that can be used |

Paging Through Results

By default, OpenMLS will return 25 records for each resource, and 250 for the Lookup resource. @odata.nextLink are included by default. It will show as long as the number of requested records is larger than the specified \$skip. It will not be generated when \$top is less than the maxpagesize. The requested set of data has been delivered, and there are no further pages of data.

It's not uncommon for vendors to need access to a lot more listings than what the maxpagesize is set to. This is set per resource by the MLS organization. The default is 1,000, 2,500 or 5,000 depending on the resource. OpenMLS does not have a separate replication endpoint. Please contact the MLS organization if you would like to specify a larger batch size to pull for replication.

No \$top and no \$skip:

```
"@odata.nextLink": "https://mlsid.paragonrels.com/OData/mlsid/DD1.7/Member?$select=MemberKeyNumeric&$skip=25"
```

No \$top and \$skip=500:

```
"@odata.nextLink": "https://mlsid.paragonrels.com/OData/mlsid/DD1.7/Member?$select=MemberKeyNumeric&$skip=525"
```

\$top=150000 and \$skip=160000 (maxpagesize=20k):

```
"@odata.nextLink": "https://mlsid.paragonrels.com/OData/mlsid/DD1.7/Property?$select=ListingId&$top=130000&$skip=180000"
```

Processing Media

The URL's in the /Media endpoint will typically point to our CDN, which is optimized to provide stability and security. Should you receive HTTP access errors, please contact us to review your current configuration. We have download limits in place. Media from our CDN is intended to be downloaded and stored locally.

Access to all media, whether it be documents, listing photos, or any other types, is controlled by the Organization. If you receive HTTP access errors from queries to the /Media endpoint, please review your feed setup with the Organization first.

Currently we do not support image URL's for Agent or Office. These will have to be obtained via RETS with GetObject Location=1.

Operators

Some additional operators available to pass with request.

| Operator | Description |
|------------|-----------------------|
| <i>eq</i> | Equal |
| <i>ne</i> | Not equal |
| <i>gt</i> | Greater than |
| <i>lt</i> | Less than |
| <i>ge</i> | Greater than or equal |
| <i>le</i> | Less than or equal |
| <i>and</i> | Logical and |
| <i>or</i> | Logical or |
| <i>not</i> | Logical not |

Parameters

Some of the parameters or fields that may be passed to narrow your results.

| Item | Type | Description |
|----------------------------|---------------|---|
| <i>ListingKey(Numeric)</i> | string/number | The listing key, available on the /Properties resource. Numeric fields are removed in DD 2.0. |
| <i>MemberKey(Numeric)</i> | string/number | The member key, available on the /Members resource. Numeric fields are removed in DD 2.0. |
| <i>OfficeKey(Numeric)</i> | string/number | The office key, available on the /Offices resource. Numeric fields are removed in DD 2.0. |
| <i>\$skip</i> | number | Skips this number of results. |
| <i>\$select</i> | string | Select the fields to be returned. |
| <i>\$unselect</i> | string | Select the fields to be excluded. |
| <i>\$filter</i> | string | Filter the results to be returned. |
| <i>\$top</i> | number | Limits the size of the result set. |
| <i>\$orderby</i> | string | Response field to sort query by (either "desc" or "asc") |

Query Functionality

The following are queries to help search through data.

| Function | Description |
|--------------|--|
| <i>any</i> | Search listings where all of the Heating is Electric: <code>/Property?\$filter=Heating/any(a: a eq 'Electric')</code> |
| <i>all</i> | Search listings where all of the flooring is hardwood: <code>/Property?\$filter=Flooring/all(a: a eq 'Hardwood')</code> |
| <i>date</i> | Search listings with a specific date: <code>/Property?\$filter=date(ModificationTimestamp) eq 2017-08-29</code> |
| <i>time</i> | Search listings with a specific time: <code>/Property?\$filter=time(ModificationTimestamp) eq 17:03:04</code> |
| <i>year</i> | Search listings with a specific year: <code>/Property?&\$filter=year(ModificationTimestamp) eq 2017</code> |
| <i>month</i> | Search listings with a specific month: <code>/Property?\$filter=month(ModificationTimestamp) eq 12</code> |
| <i>day</i> | Search listings with a specific day: <code>/Property?\$filter=day(ModificationTimestamp) eq 23</code> |
| <i>hour</i> | Search listings with a specific hour: <code>/Property?\$filter=hour(ModificationTimestamp) eq 17</code> |
| <i>now()</i> | Search listings within the current timestamp: <code>/Property?\$filter=ModificationTimestamp eq now()</code> |

Handling Time Zones

One special note needs to be made regarding time zones. RESO's [Web Core API 2.0.0](#) specifications require precision of 27 to support ISO 8601 format. To simplify MLS organizations being in multiple time zones, our system is configured to only accept a value of 'Z' and not +/-00:00.
ie: 2021-05-21T06:28:34Z

Additional Support

Please visit our [Vendor Support page](#) for additional resources or contact methods.