

# ARLAS

The ARLAS API makes the ARLAS catalog available for exploration and browsing. The catalog contains collections of geo-referenced elements. Every element has a geometry, a centroid, a timestamp and a set of fields specific to the collection.

## URL Schema

The table below lists the URL endpoints and their optional "parts". A part is composed of optional parameters. The parameters are separated with the character &.

PATH Template	Description
/arlas/explore/_list	List the collections configured in ARLAS
/arlas/explore/{collection}/_describe?form	Describe the structure and the content of the given collection
/arlas/explore/{collection}/_count?filter & form	Count the number of elements found in the collection, given the filters
/arlas/explore/{collection}/_search?filter & form & projection & size & sort	Search and return the elements found in the collection, given the filters
/arlas/explore/{collection}/_geosearch?filter & form & projection & size & sort	Search and return the elements found in the collection as features, given the filters
/arlas/explore/{collections}/_aggregate?aggregation & filter & form	Aggregate the elements in the collection(s), given the filters and the aggregation parameters
/arlas/explore/{collections}/_geoaggregate?aggregation & filter & form & size & sort	Aggregate the elements in the collection(s) as features, given the filters and the aggregation parameters
/arlas/explore/{collections}/_suggest?filter & form & size & suggest	Suggest the the n (n=size) most relevant terms given the filters

When multiple collections are permitted ({collections}), the comma is used for separating the collection names.

## Examples

`https://api.gisaia.com/demo/arlal/explore/_describe`

`https://api.gisaia.com/demo/arlal/explore/city,state,country/_describe`

`https://api.gisaia.com/demo/arlal/explore/city,state,country/_count?q=bord*&f=country:France&pretty=true&human=true`

`https://api.gisaia.com/demo/arlal/explore/election/_search?f=country:France&after=1490613808&format=geojson&pretty=true&human=true&size=1000&include=id,name`

`https://api.gisaia.com/demo/arlal/explore/election/_aggregate?f=country:France&after=1490613808&format=geojson&pretty=true&human=true&size=1000&include=id,name&agg=geohash&agg_interval=4`

# URL Parts

## Part: aggregation

The [aggregation] url part allows the following parameters to be specified:

Parameter	Default value	Description	Multiple
<b>agg</b>	None	Gathers a set of sub-parameters indicating the type of aggregation, the field used as the aggregation key and possibly the interval for numeric values	true for _aggregate only

The agg parameter should be given in the following format :

- `{type}:{field}:interval-{interval}:format-{format}:collect_field-{collect_field}:collect_fct-{function}:order-{order}:on-{on}:size-{size}`

Where the {type}:{field} part is mandatory

The other parts must be specified or not depending on the aggregation type. All the cases are sum up in the following table.

Parameter	Aggregation type	Description
<b>interval</b>	datehistogram, histogram, geohash	mandatory
<b>format</b>	datehistogram	optional (default value : yyyy-MM-dd-HH:mm:ss)
<b>(collect_field,collect_fct)</b>	All types	optional
<b>(order,on)</b>	term, histogram, datehistogram	optional
<b>size</b>	term, geohash	optional

Example: agg=datehistogram:date:interval-20day:format-dd.MM.yyyy&agg=term:sexe:collect\_field-age:collect\_fct-avg:order-asc:on-result:size-5

The sub-parameters possible values are:

Parameter	Values	Description
<b>{type}</b>	datehistogram, histogram, geohash, term	Type of aggregation
<b>{field}</b>	{field}	Aggregates on {field}
<b>interval</b>	{interval}	Size of the intervals.(1)
<b>format</b>	<a href="https://www.elastic.co/guide/en/elasticsearch/reference/current/search-aggregations-bucket-daterange-aggregation.html#date-format-pattern">Date format</a> ( <a href="https://www.elastic.co/guide/en/elasticsearch/reference/current/search-aggregations-bucket-daterange-aggregation.html#date-format-pattern">https://www.elastic.co/guide/en/elasticsearch/reference/current/search-aggregations-bucket-daterange-aggregation.html#date-format-pattern</a> ) for key aggregation	Date format for key aggregation.
<b>collect_field</b>	{collect_field}	The field used to aggregate collections.
<b>collect_fct</b>	avg,cardinality,max,min,sum	The aggregation function to apply to collections on the specified <b>collect_field</b> .
<b>order</b>	asc,desc	Sorts the aggregation buckets on the field name, on the count of the buckets or on the the result of a metric sub-aggregation, ascending or

<b>on</b>	field,count,result (2)	descending.
<b>size</b>	{size}	{on} is set to specify whether the <b>order</b> is on the field name, on the count of the aggregation or the result of a metric subaggregation.  Defines how many buckets should be returned.

(1) Each aggregation type ({type}) has its own type of interval. The table below lists the semantic of the interval sub-parameter.

(2) When **on** is result, then (**collect\_field,collect\_fct**) should be specified

Service	Aggregation type	Interval	Description
<i>_aggregate</i>	<i>datehistogram</i>	{size} (year,quarter,month,week,day,hour,minute,second)	Size of a time interval with the given unit (no space between number and unit). Size must be equal to 1 for year, quarter and month
<i>_geoaggregate</i>	<i>geohash</i>	{length}	The geohash length: lower the length, greater is the surface of aggregation. See table below.
<i>_aggregate</i>	<i>histogram</i>	{size}	The interval size of the numeric aggregation
<i>_aggregate</i>	<i>term</i>	None	None

The table below shows the metric dimensions for cells covered by various string lengths of geohash. Cell dimensions vary with latitude and so the table is for the worst-case scenario at the equator.

GeoHash length	Area width x height
1	5,009.4km x 4,992.6km
2	1,252.3km x 624.1km

3	156.5km x 156km
4	39.1km x 19.5km
5	4.9km x 4.9km
6	1.2km x 609.4m
7	152.9m x 152.4m
8	38.2m x 19m
9	4.8m x 4.8m
10	1.2m x 59.5cm
11	14.9cm x 14.9cm
12	3.7cm x 1.9cm

**agg** parameter is multiple. Every agg parameter specified is a subaggregation of the previous one : the order matters.

For **\_geoaggregate** service, the first (main) aggregation must be geohash.

## Part: filter

The filter url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
<b>f</b>	None	{fieldName} {operator} {value}  {text} or	A triplet for filtering the result. Multiple filter can be provided. The order does not matter. A triplet is composed of a field name, a comparison operator and a value. The <b>AND</b> operator is applied between filters. For the :eq: filter, values can be comma separated (field:eq:v1,v2) which stands for an <b>OR</b> . For the :ne: filter, values can be comma separated (field:ne:v1,v2) which stands for an <b>AND</b>	true

<b>q</b>	None	{fieldname}: {text}	A full text search. Optionally, it's possible to search the text on a specific field	false
<b>before</b>	None	timestamp	Any element having its point in time reference before the given timestamp	false
<b>after</b>	None	timestamp	Any element having its point in time reference after the given timestamp	false
<b>pwithin</b>	None	geometry	Any element having its centroid contained within the given BBOX	false
<b>gwithin</b>	None	geometry	Any element having its geometry contained within the given geometry	false
<b>gintersect</b>	None	geometry	Any element having its geometry intersecting the given geometry (WKT)	false
<b>notpwithin</b>	None	geometry	Any element having its centroid outside the given BBOX	false
<b>notgwithin</b>	None	geometry	Any element having its geometry not contained within the given geometry	false
<b>notgintersect</b>	None	geometry	Any element having its geometry not intersecting the given geometry (WKT)	false

Operator	Description	Value type
:eq:	{fieldName} equals {comma separated values}. <b>OR</b> operation is applied for the specified values	numeric or strings
:ne:	{fieldName} must not equal {comma separated values }. <b>AND</b> operation is applied for the specified values	numeric or strings
:like:	{fieldName} is like {value}.	numeric or strings
:gte:	{fieldName} is greater than or equal to {value}	numeric
:gt:	{fieldName} is greater than {value}	numeric
:lte:	{fieldName} is less than or equal to {value}	numeric
:lt:	{fieldName} is less than {value}	numeric

Example: f=city:eq:Toulouse&f=city:eq:Bordeaux&after=1490613808&

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## Part: form

The form url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
<b>pretty</b>	false	true,false	Pretty print	false
<b>human</b>	false	true,false	Human readable print	false

Example: pretty=true&human=true

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## Part: format

The format url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
<b>format</b>	false	json,geojson	JSON or GeoJSON format	false

Example: format=geojson

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## Part: projection

The projection url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
include	*	{fieldNamePattern}	List the name patterns of the field to be included in the result. Seperate patterns with a comma.	true
exclude	*	{fieldNamePattern}	List the name patterns of the field to be excluded in the result. Seperate patterns with a comma.	true

Example: include=\*&exclude=city,state

## Part: suggest

The suggest url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
field	_all	{fieldName}	Name of the field to be used for retrieving the most relevant terms	false

Example: field=recommended

## Part: size

The size url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
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<b>size</b>	10	>0	The maximum number of entries or sub-entries to be returned.	false
<b>from</b>	0	>0	From index to start the search from. Defaults to 0.	false

Example: size=1000

## Part: sort

The sort url part allows the following parameters to be specified:

Parameter	Default value	Values	Description	Multiple
<b>sort</b>	None	((-?) {field}) (,(-?) {field})*	Sort the result on the given fields ascending or descending. Fields can be provided several times by separating them with a comma. The order matters. For a descending sort, precede the field with '-'. The sort will be ascending otherwise. For aggregation, provide the agg keyword as the {field}.	false (separate fields with comma in the same parameter)

Example: sort=-country,city