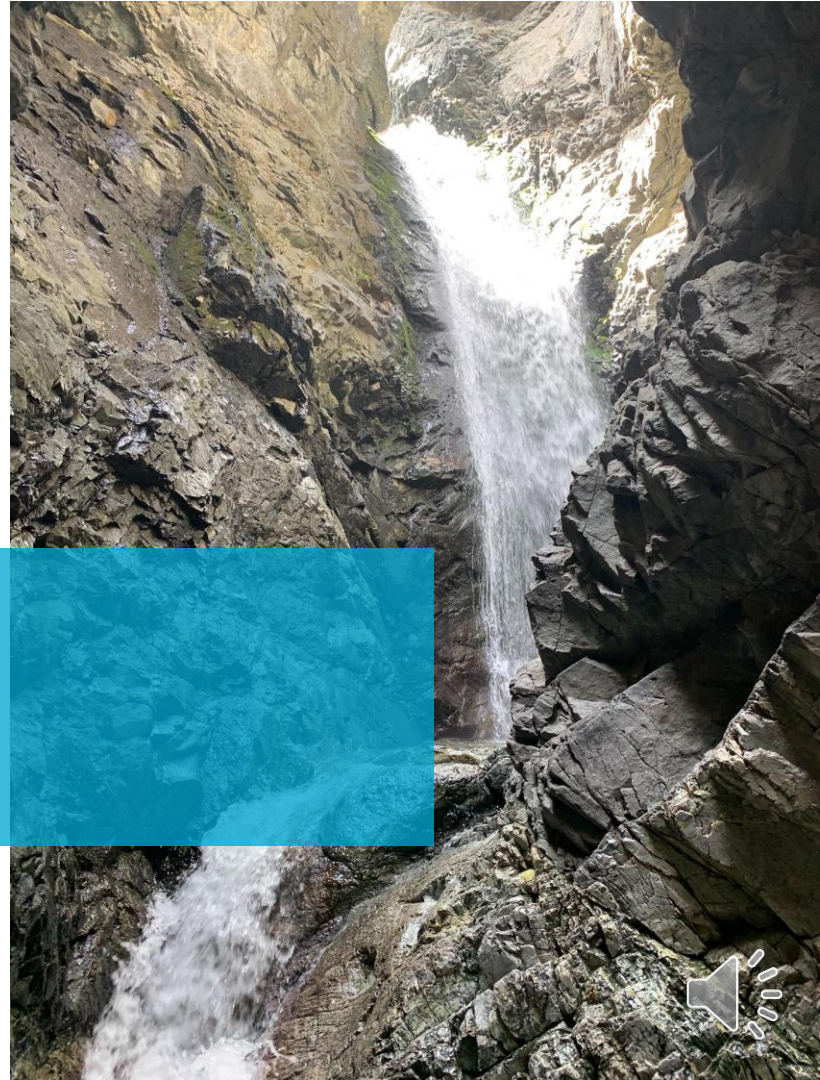




OSDU Data Platform Application Developer Training

Search Service



Search Service Overview

- » Allows running various queries:
 - Full-text
 - Field ranges
 - Field match
 - Sort, Aggregations, Filters
 - Geo-Spatial coordinates
 - Limits & Pagination
- » Provides an API to do
 - queries
 - queries with cursor
- » Requires membership in
 - *service.search.user*
 - the searched records' ACL as Viewers

How Are Queries Executed?

- » Record is indexed into Elasticsearch
- » Query is performed against Elasticsearch Index
- » JSON-style language to issue query

Query Syntax

```
{
  "kind": "opendes:wks:master-data--Well:1.0.0 ",
  "query": "Text query",
  "offset": 0,
  "limit": 1000,
  "sort": {
    "fields": ["id"],
    "order": ["ASC"]
  },
  "queryAsOwner": true,
  "spatialFilter": {
    "field": "data.SpatialLocation.Wgs84Coordinates",
    "byDistance": {
      "point": {
        "longitude": 5.1580810546875,
        "latitude": 52.859180945520826
      },
      "distance": 10000
    }
  },
  "trackTotalCount": true,
  "returnedFields": ["id", "kind"],
  "aggregatedBy": "kind"
}
```

Query by Kind

// 1. look for all entities of given kind

```
{  
  "kind": "opendes:wks:master-data--Well:1.0.0"  
}
```

// 2. look for all wellbores of any version for *wks* source in *opendes* partition

```
{  
  "kind": "opendes:wks:master-data--Wellbore:*"  
}
```

// 3. search across all entity types and versions for *wks* source in *opendes* partition

```
{  
  "kind": "opendes:wks:*:*"  
}
```

Text Queries

// 1. full text search & look for in all fields

```
{  
  "kind": "opendes:wks:master-data--Well:1.0.0",  
  "query": "BIR"  
}
```

// 2. field match search & wildcard

```
{  
  "kind": "opendes:wks:master-data--Wellbore:*",  
  "query": "data.WellID:(Well AND 100?)"  
}
```

// 3. field match & exact text match

```
{  
  "kind": "opendes:wks:master-data--Wellbore:*",  
  "query": "id:\"opendes:master-data--Wellbore:1000\""  
}
```

Lucene Apache Query Syntax: https://lucene.apache.org/core/2_9_4/queryparsersyntax.html

Sorting

```
// sort by field in descending order
{
  "kind": "opendes:wks:work-product-component--WellLog:*",
  "sort": {
    "field":["data.BottomMeasuredDepth"],
    "order": ["DESC"]
  },
  "limit": 10
}
```

Aggregation

```
// count how many records are per kind for all kinds
{
  "kind" : " *.*.*.*",
  "aggregateBy": "kind",
  "limit": 1000
}
```


Range Queries

// 1. get logs with bottom measured depth between 2000 and 3000

```
{  
  "kind": "opendes:wks:work-product-component--WellLog:1.0.0",  
  "query": "data.BottomMeasuredDepth:[2000 TO 3000]"  
}
```

// 2. get entities with spud date between two dates

```
{  
  "kind": "opendes:wks:*.1.0.0",  
  "query": "(data.FacilityEvents.FacilityEventTypeID: \"opendes:reference-data--  
FacilityEventType:SPUD:\") AND (data.FacilityEvents.EffectiveDateTime:[1901-01-01 TO 2001-01-01])",  
  "sort": {  
    "field": ["data.FacilityEvents.EffectiveDateTime"],  
    "order": ["DESC"]  
  },  
  "limit": 30  
}
```

Geo-Spatial Queries

- » By distance
- » By bounding box
- » By geo-polygon

// get wells within a given distance

```
{  
  "kind": "opendes:wks:master-data--Well:1.0.0",  
  "spatialFilter": {  
    "field": "data.SpatialLocation.Wgs84Coordinates",  
    "byDistance": {  
      "point": {  
        "longitude": 5.1580810546875,  
        "latitude": 52.859180945520826  
      },  
      "distance": 10000  
    }  
  }  
}
```

Query by Nested Array of Objects

- » Arrays of objects in Elasticsearch:
 - Flattened object
 - Nested objects

// single-level several conditions nested query

```
{  
  "kind" : "opendes:wks:work-product-component--wellboremarkerset:1.0.0",  
  "query": "nested(data.Markers, (MarkerMeasuredDepth:(>1000) AND MarkerName:(Coppershale)))"  
}
```

Pagination

- » *query_with_cursor* endpoint
- » *limit* and *offset* combination

```
{  
  "kind": "opendes:wks:master-data--Wellbore:*",  
  "offset": 1,  
  "limit": 100  
}
```