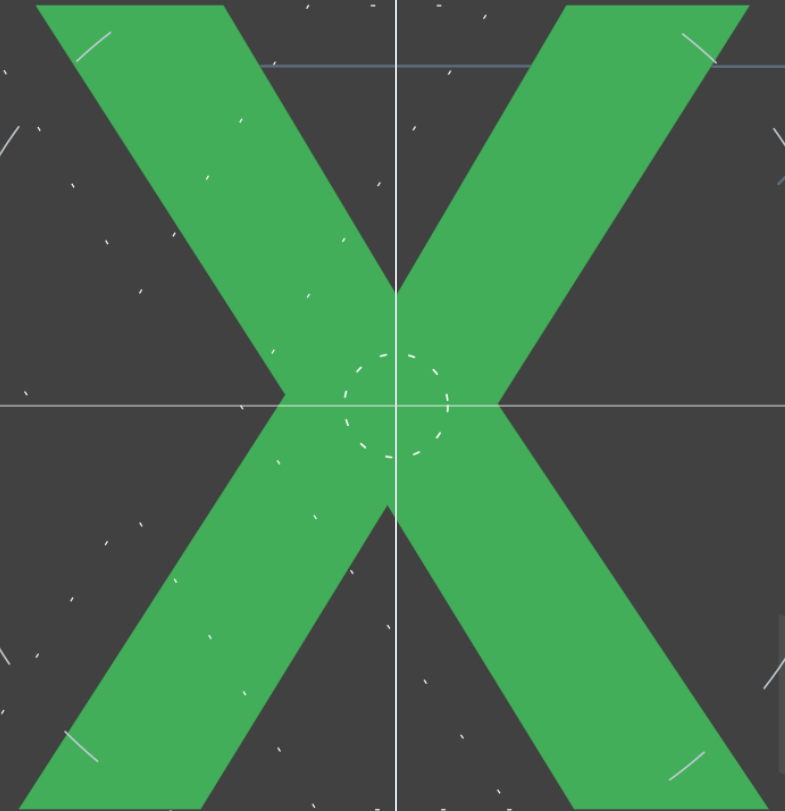


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SDL*

Deep dive into Tridion DXD search experience

Candas Pamukcu



Agenda



- Introduction to SDL Tridion Search
- Architectural overview and implementation details
- Out-of-box search experience
- GraphQL endpoints
- GraphQL simple & advanced queries
- GraphQL search results with Broker (RDMS) results
- Using hidden search capabilities over GraphQL



Joined SDL R&D Content Delivery Team in 2019
Lead developer for search implementation

Candaş Pamukçu

Senior Software Engineer

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Introduction

SDL Tridion Search

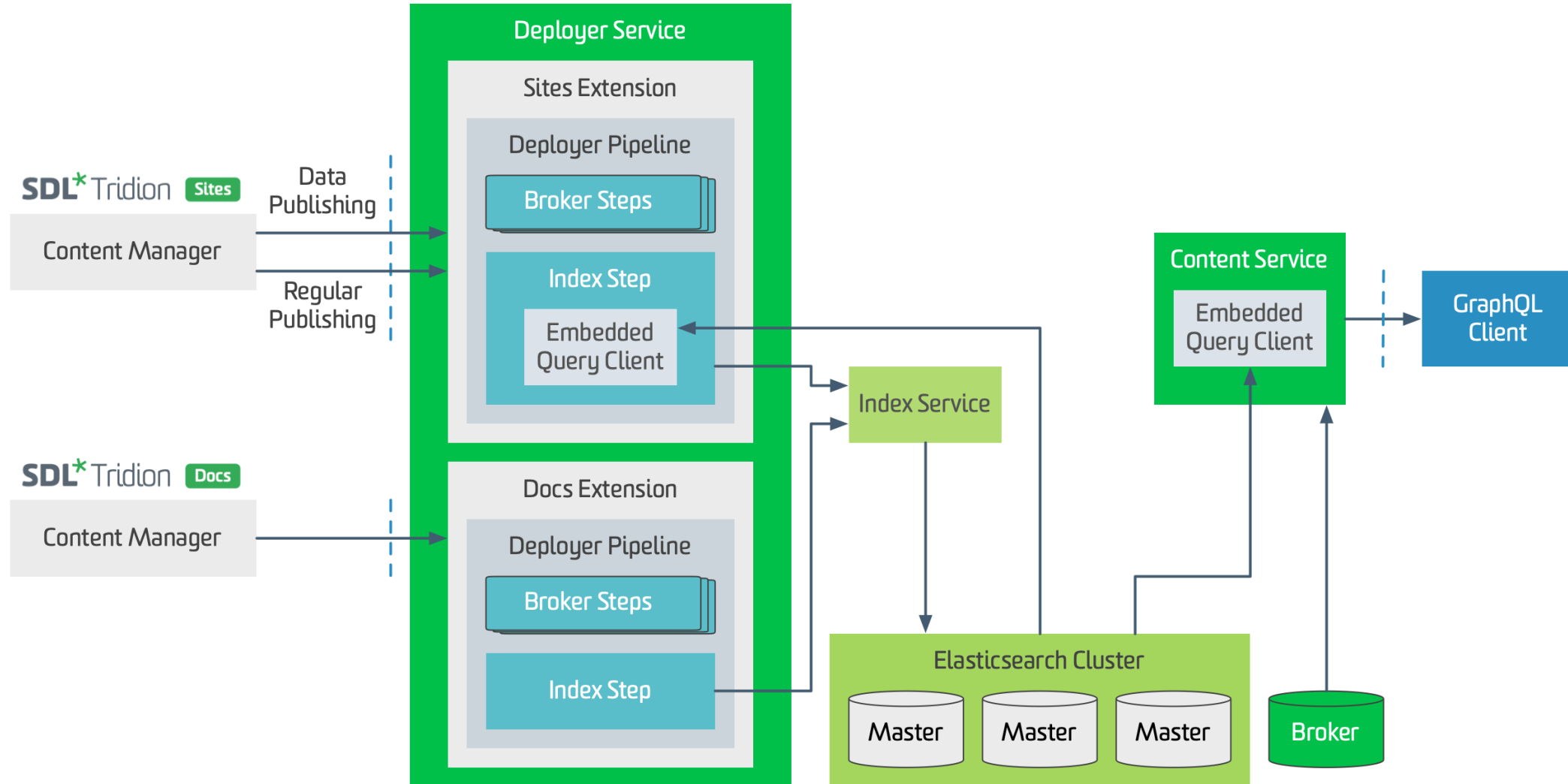


- Optimized for both Docs and Sites data model
- Makes use of existing Elasticsearch infrastructure – upgraded to ES 7
- Both Docs and Sites search capabilities exposed through same GraphQL endpoints by Content Service
- Data can be retrieved just from Elasticsearch (faster response) or with broker results

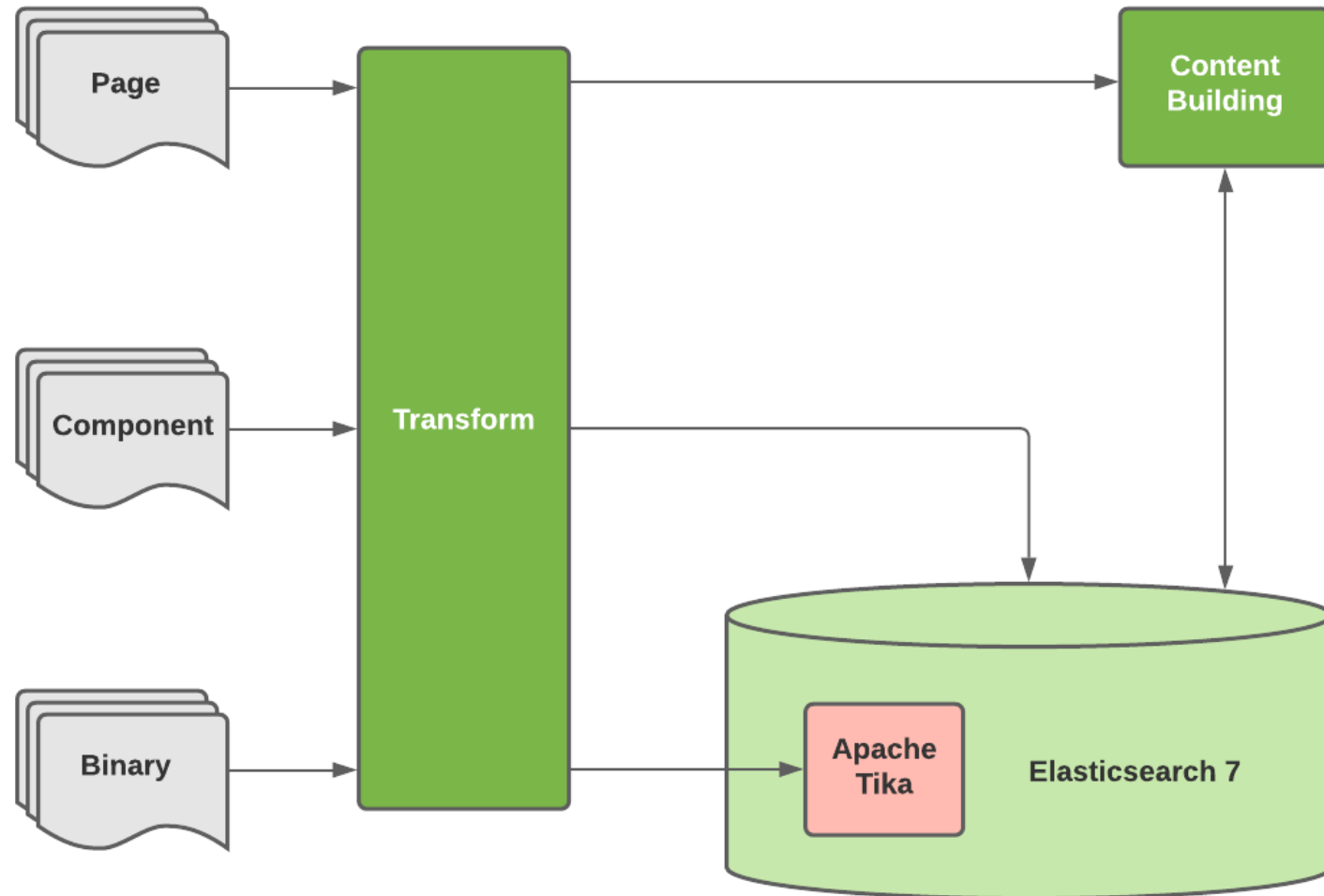


Architecture and Implementation

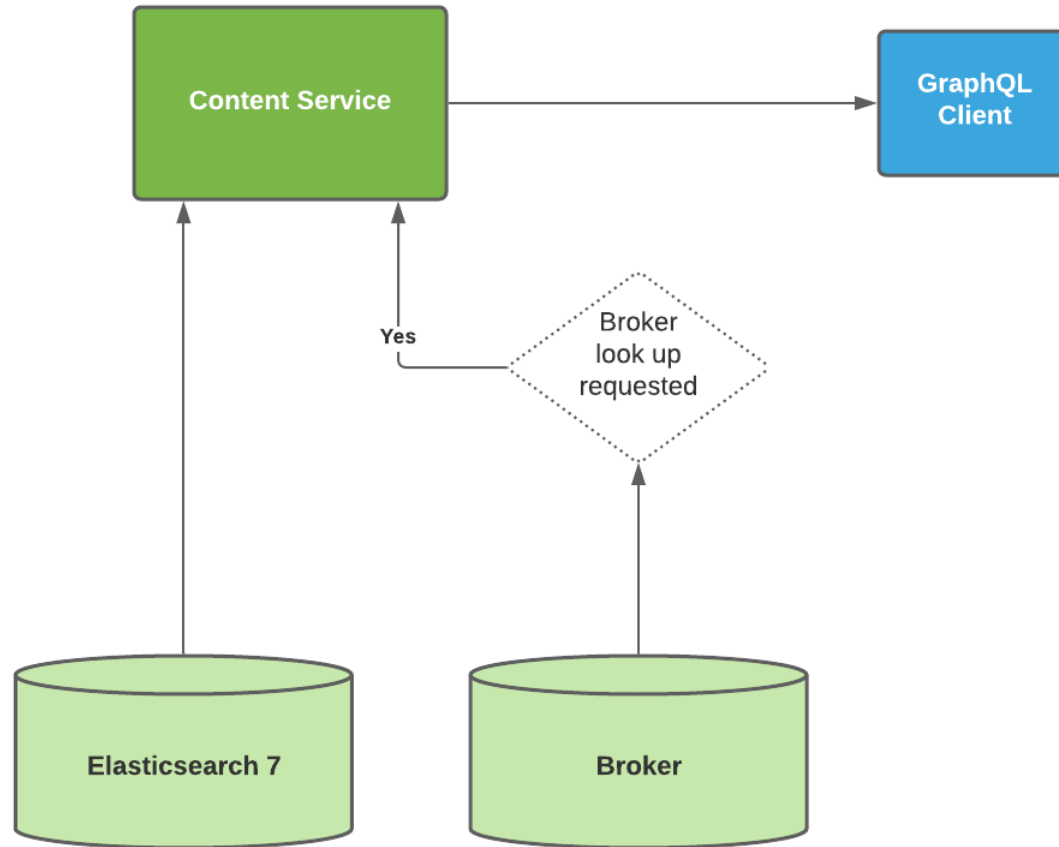
Architecture



Indexing step simplified



Querying part simplified



Example indexed entities



Component

```
{
  "_index": "stagingudp-index",
  "_type": "_doc",
  "_id": "tcm_5-326",
  "_source": {
    "clientId": "tcm_5-326",
    "namespace": "tcm",
    "publicationId": "5",
    "publicationTitle": "",
    "itemType": "component",
    "location": "",
    "schemaId": "tcm:5-122-8",
    "createdDate": "2020-04-16T13:38:12+0000",
    "modifiedDate": "2020-04-16T13:38:12+0000",
    "majorVersion": "1",
    "minorVersion": "0",
    "dynamic": { },
    "dynamic_not_indexed": { },
    "rawLanguageTitle": {
      "general": "Example News 4"
    },
    "content": {
      "general": "In lacinia sagittis nulla vel ullamcorper  
Pellentesque quis purus lobortis... [OMITTED]"
    },
    "rawcontent": "{ '$type': 'Fields', 'headline': 'In lacinia  
sagittis nulla vel  
ullamcorper', 'articleBody': { '$type': 'Fields' [], '$values': [
      { 'subheading': 'Pellentesque quis purus lobortis... [OMITTED]'
    ]
  }
}
```

Page that uses the component

```
{
  "_index": "stagingudp-index",
  "_type": "_doc",
  "_id": "tcm_5-357-64",
  "_source": {
    "clientId": "tcm_5-357-64",
    "namespace": "tcm",
    "publicationId": "5",
    "publicationTitle": "",
    "itemType": "page",
    "location": "",
    "createdDate": "2020-04-16T13:38:32+0000",
    "modifiedDate": "2020-04-16T13:38:32+0000",
    "majorVersion": "1",
    "minorVersion": "0",
    "dynamic": {
      "relatives": [
        "tcm_5-326"
      ]
    },
    "dynamic_not_indexed": { },
    "rawLanguageTitle": {
      "general": "Example News 4"
    },
    "content": {
      "general": "In lacinia sagittis nulla vel ullamcorper  
Pellentesque quis purus lobortis... [OMITTED]"
    },
    "rawcontent":
      "{ '$type': 'EmbeddedRegion', 'components': [], 'regions': [ { '$type': 'Embed  
dedRegion', 'components': [ { '$type': 'Link', 'id': 'tcm:5-326', 'title': 'Ex  
ample News  
4' } ], 'regions': [], 'regionName': 'Article', 'schema': { '$type': 'Link', 'id  
' : 'tcm:5-199-8', 'title': '[Article] Region' } } ] }"
```

Example indexed entities



PDF Binary Component

```
{
  "_index": "stagingudp-index",
  "_type": "_doc",
  "_id": "tcm_5-462",
  "_source": {
    "clientId": "tcm_5-462",
    "namespace": "tcm",
    "publicationId": "5",
    "publicationTitle": "400 Example Site",
    "itemType": "component",
    "locale": "en_US",
    "location": "\\400 Example Site\\Building
    Blocks\\Content\\_Cloneable Content",
    "url": "/media/PAY_29012020_Elaine_T.pdf",
    "schemaId": "tcm:5-461-8",
    "createdDate": "2020-05-01T15:24:25+0000",
    "modifiedDate": "2020-05-23T16:20:29+0000",
    "majorVersion": "3",
    "minorVersion": "0",
    "dynamic": { },
    "dynamic_not_indexed": { },
    "rawLanguageTitle": {
      "english": "Trains Component"
    },
  },
  "content": {
    "english": "Payment confirmation R J STIDWELL *****522 | 602246
    Payee name Elaine Trains 21598244 | 40-43-54 Payment amount
    £37.00 Payee reference Stidwell Dublo Payment date 29 January
    2020"
  },
  "binaryContentLength": 188,
  "binaryContentType": "application/pdf",
  "binaryFileName": "PAY_29012020_Elaine_T.pdf",
  "binaryCreatedDate": "2020-01-29T23:08:41Z",
  "binaryLanguage": "en",
}
}
```

PPT Binary Component

```
{
  "_index": "stagingudp-index",
  "_type": "_doc",
  "_id": "tcm_8-752",
  "_source": {
    "clientId": "tcm_8-752",
    "namespace": "tcm",
    "publicationId": "8",
    "publicationTitle": "400 Example Site",
    "itemType": "component",
    "locale": "da_DK",
    "location": "\\400 Example Site\\Building
    Blocks\\Modules\\Core\\Admin",
    "url": "/media/old_Testing-Conference.ppt",
    "schemaId": "tcm:8-277-8",
    "createdDate": "2020-04-28T15:22:42+0000",
    "modifiedDate": "2020-04-28T15:22:42+0000",
    "majorVersion": "1",
    "minorVersion": "0",
    "dynamic": { },
    "dynamic_not_indexed": { },
    "rawLanguageTitle": {
      "danish": "_ old presentation '"
    },
  },
  "content": {
    "danish": "Presentations Google Testing for the cloud (actually
    blah about how clouds work) Microsoft The Business Value of
    Testing (actually blah about how Vis Studio) Dr Jef Jacobs
    Adverse Effects of Distributed Development on Product Quality +
    Solution Directions Capgemini Beyond Agil Testing (actually
    described Smart and SCRUM) Ilari Henrik Aegerter, Phonak AG
    Micormangement and... [OMITTED]"
  },
  "binaryContentLength": 3615,
  "binaryContentType": "application/vnd.ms-powerpoint",
  "binaryFileName": "old_Testing-Conference.ppt",
  "binaryAuthor": "rstidwell",
  "binaryCreatedDate": "2010-04-22T15:56:48Z",
  "binaryTitle": "Slide 1",
  "binaryLanguage": "en",
}
}
```



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Experience



SDL Tridion Search

- Enabled by default
- Feature toggle to switch on/off (Deployer and Content)
- Simple unified architecture/model
- Content immediately searchable after first publish
- Covers most production use cases for a search flow
- Useful for administrative purposes



GraphQL endpoints



Simple queries

searchById



Query can be used to retrieve items fast with a given id.

```
searchById(identifier: String!): [Result] {  
  hits: Int  
  searchResult: SearchResult  
  brokerResult: [Item]  
}
```

```
searchById(identifier: "tcm:5-433") {  
  hits  
  searchResult {  
    id  
    locale  
    mainContentField  
  }  
  brokerResult {  
    title  
    itemType  
    ...on BinaryComponent {  
      multimedia  
    }  
  }  
}
```




searchByField

Query can be used to search items with a single field.
Pagination, sorting and highlighting supported.

```
searchByField(  
  after: String  
  first: Int  
  field: String!  
  value: String!  
  strict: Boolean = false  
  resultFilter: InputResultFilter  
  sortBy: InputSortBy  
): SearchConnection {  
  edges {  
    node {  
      hits: Int  
      searchResult: SearchResult  
      brokerResult: [Item]  
    }  
  }  
}
```

```
searchByField(  
  field: "createdDate"  
  value: "2020-05-15"  
  sortBy: {  
    fields: ["publicationId"]  
    sortingDirection: DESCENDING  
  }  
){  
  edges {  
    node {  
      hits  
      searchResult  
      brokerResult  
    }  
  }  
}
```



Advanced queries



searchByQuery

**Query can be used to search items with operations.
Pagination, sorting and highlighting supported.**

```
searchByQuery(  
  after: String  
  first: Int  
  criteria: InputSearchCriteria!  
  resultFilter: InputResultFilter  
  sortBy: InputSortBy  
): SearchConnection {  
  edges {  
    node {  
      hits: Int  
      searchResult: SearchResult  
      brokerResult: [Item]  
    }  
  }  
}
```

```
searchByQuery(  
  criteria: {  
    field: "createdDate"  
    value: "2020-05-15"  
    and: {  
      field: "namespace"  
      value: "tcm"  
    }  
  }  
  sortBy: {  
    fields: ["publicationId"]  
    sortingDirection: DESCENDING  
  }  
)
```



Hidden queries



searchByRawQuery

Query can be used to search items with advanced operations.
Pagination, sorting and highlighting supported.

```
searchByRawQuery(  
  after: String  
  first: Int  
  rawQuery: String!  
  resultFilter: InputResultFilter  
): SearchConnection {  
  edges {  
    node {  
      hits: Int  
      searchResult: SearchResult  
      brokerResult: [Item]  
    }  
  }  
}
```

```
searchByQuery (  
  rawQuery: "[SearchQuery API output]"  
)
```



SearchQuery API

Enables more powerful and detailed search queries.

Java & .Net API versions are available.

Just build it and post the generated DSL to `searchByRawQuery`

```
String rawQuery = new SearchQuery()
    .not().id("tcm:5-433")
    .compile();
```

```
{
  "type": "query",
  "op": "UNIT",
  "nodes": [{
    "type": "id",
    "key": "tcm:5-433",
    "negate": "true"
  }]
}
```



SearchQuery API examples

```
String rawQuery = new SearchQuery()
    .field("createdDate", "2020-05-15")
    .and()
    .field("namespace", "tcm")
    .sortByDescending(List.of("publicationId"))
    .compile();
```

```
{
  "type":"query",
  "op":"AND",
  "sort":[
    "publicationId"
  ],
  "descending":"true",
  "nodes":[{"
    "type":"field",
    "key":"createdDate",
    "value":"2020-05-15",
    "fieldType":"STRING"
  },
  {
    "type":"field",
    "key":"namespace",
    "value":"tcm",
    "fieldType":"STRING"
  }
]}
```



SearchQuery API examples

```
new SearchQuery()  
    .field("createdDate", "2020-05-15")  
    .and()  
    .not().field("publicationId", 5)  
    .compile();
```

```
new SearchQuery()  
    .field("namespace", "tcm")  
    .and()  
    .range("createdDate", "2020-05-15" , "2020-05-18")  
    .compile();
```


SearchQuery API examples



```
new SearchQuery()  
  .field("namespace", "tcm")  
  .and()  
  .groupStart()  
    .range("createdDate", "2020-05-15" , "2020-05-18")  
    .and()  
    .field("content+english", "awesome")  
  .groupEnd()  
  .compile();
```

SearchQuery API examples



```
new SearchQuery()
    .groupedOr(
        List.of("content+english", "content+english"),
        List.of(
            new DefaultTermValue().wildCard("se*ch"),
            new DefaultTermValue().fuzzy("search").boost(2.0))
        )
    .compile());
```

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Live Demo

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Q&A

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