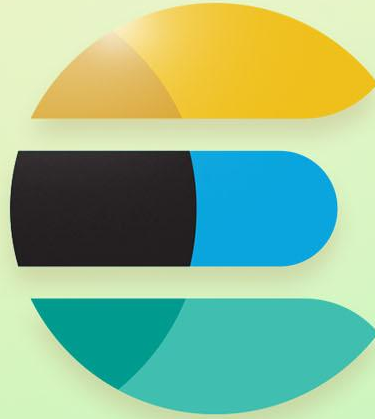


Nested inner hits



Introduction

- With the `nested` query, matches are “root documents”
 - E.g. recipes when searching for ingredients
- Sometimes we might want to know *what* matched instead of just *something*
- Nested inner hits tell us which nested object(s) matched the query
 - E.g. which ingredient(s) matched in a recipe

Structure of search results

```
{
  "took": 106,
  "timed_out": false,
  "_shards": {
    "total": 1,
    "successful": 1,
    "skipped": 0,
    "failed": 0
  },
  "hits": {
    "total": {
      "value": 1,
      "relation": "eq"
    },
    "max_score": 4.4102354,
    "hits": [...]
  }
}
```

Structure of search result hit

```
{
  "_index": "recipes",
  "_type": "_doc",
  "_id": "21",
  "_score": 4.4102354,
  "_source": { ... }
}
```

Inner hit example

```
{
  ...
  "_source": { ... },
  "inner_hits": {
    "ingredients": {
      "hits": {
        "total": {
          "value": 1,
          "relation": "eq"
        },
        "max_score": 4.4102354,
        "hits": [{
          "_index": "recipes",
          "_type": "_doc",
          "_id": "21",
          "_nested": {
            "field": "ingredients",
            "offset": 1
          },
          "_score": 4.4102354,
          "_source": {
            "amount": 175,
            "unit": "grams",
            "name": "Grated Parmesan cheese"
          }
        }]
      }
    }
  }
}
```

```

{
  ...
  "inner_hits": {
    "ingredients": {
      "hits": {
        ...
        "hits": [{
          "_index": "recipes",
          "_type": "_doc",
          "_id": "21",
          "_nested": {
            "field": "ingredients",
            "offset": 1
          },
          "_score": 4.4102354,
          "_source": {
            "amount": 175,
            "unit": "grams",
            "name": "Grated Parmesan cheese"
          }
        }]
      }
    }
  }
}

```

```

{
  "title": "Crispy Baked Pasta With Mushrooms [...]",
  "ingredients": [{
    {
      "name": "Panko-style bread crumbs",
      0 "amount": 1,
      "unit": "cups"
    },
    {
      "name": "Grated Parmesan cheese",
      1 "amount": 175,
      "unit": "grams"
    },
    {
      "name": "Chopped fresh parsley leaves",
      2 "amount": 0.25,
      "unit": "cups"
    },
    {
      "name": "Finely minced fresh chives",
      3 "amount": 2,
      "unit": "tbsp"
    },
    {
      "name": "Shallots",
      4 "amount": 2,
      "unit": "pcs"
    },
    ...
  ]
  ...
}

```



Structure using dot notation

```
hits.hits[0]._source: { ... }  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._index: "recipes"  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._type: "_doc"  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._id: "21"  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._score: 4.4102354  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._nested.field: "ingredients"  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._nested.offset: 1  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._source.amount: 175  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._source.unit: "grams"  
hits.hits[0].inner_hits.ingredients.hits.hits[0]._source.name: "Grated Parmesan cheese"
```

Query

```
GET /recipes/_search
{
  "query": {
    "nested": {
      "path": "ingredients",
      "inner_hits": {
        "name": "my_hits",
        "size": 10
      },
    },
    "query": {
      "bool": {
        "must": [
          { "match": { "ingredients.name": "parmesan" } },
          { "range": { "ingredients.amount": { "gte": 100 } } }
        ]
      }
    }
  }
}
```



Search results

```
{
  "hits": {
    ...
    "hits": [
      {
        ...
        "inner_hits": {
          "my_hits": {
            "hits": {
              ...
            }
          }
        }
      }
    ]
  }
}
```

Lecture summary

- Nested inner hits tell us which nested object(s) matched a query
 - E.g. which ingredient(s) matched in a recipe
- Without inner hits, we only know that *something* matched
- Simply add the `inner_hits` parameter to the `nested` query
 - Supply `{}` as the value for the default behavior
 - Information about the matched nested object(s) is added to search results
 - Use the `offset` key to find each object's position within `_source`
 - Customize results with the `name` and `size` parameters