

Chapter 7 - Modeling Your Data in the Real World

Example Request - IEX_ACWF_chart_3m

GET https://cloud.iexapis.com/v1/stock/ACWF/chart/3m?token=pk_d68567ab0eac47059c4415f485f45106

```
curl --location --request GET
https://cloud.iexapis.com/v1/stock/ACWF/chart/3m?token=pk_d68567ab0eac47059c4415f485f45106
```

Example Request - cf_etf_dividend_denormalize_mappings

GET http://localhost:9200/cf_etf_dividend_denormalize/_mappings

Headers

Content-Type	application/json
--------------	------------------

```
curl --location --request GET
"http://localhost:9200/cf_etf_dividend_denormalize/_mappings" --header "Content-Type:
application/json"
```

Example Request - cf_etf_dividend_denormalize_search

POST http://localhost:9200/cf_etf_dividend_denormalize/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "exDate": {
              "lte": "2016-02-01"
            }
          }
        },
        {
          "range": {
            "amount": {
              "gte": 0.1
            }
          }
        },
        {
          "match": {
            "symbol": "ACWF"
          }
        }
      ]
    }
  }
}
```

```
curl --location --request POST
"http://localhost:9200/cf_etf_dividend_denormalize/_search" --header "Content-Type:
application/json" --data
"{\"query\":{\"bool\":{\"must\":[{\"range\":{\"exDate\":{\"lte\":\"2016-02-
01\"}}},{\"range\":{\"amount\":{\"gte\":0.1}}},{\"match\":{\"symbol\":\"ACWF\"}}]}}}"
```

Example Request - cf_etf_dividend_array_object_mappings

GET http://localhost:9200/cf_etf_dividend_io/_mappings

Headers

Content-Type	application/json
--------------	------------------

```
curl --location --request GET "http://localhost:9200/cf_etf_dividend_io/_mappings" --header "Content-Type: application/json"
```

Example Request - cf_etf_dividend_array_object_search

POST http://localhost:9200/cf_etf_dividend_io/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "announcement.exDate": {
              "lte": "2016-02-01"
            }
          }
        },
        {
          "range": {
            "announcement.amount": {
              "gte": 0.1
            }
          }
        }
      ]
    }
  }
}
```

```
{
  "match": {
    "symbol": "ACWF"
  }
}
```

```
curl --location --request POST
"http://localhost:9200/cf_etf_dividend_denormalize/_search" --header "Content-Type:
application/json" --data
"{\"query\":{\"bool\":{\"must\":[{\"range\":{\"announcement.exDate\":{\"lte\":\"2016-
02-
01\"}}},{\"range\":{\"announcement.amount\":{\"gte\":\"0.1\"}}},{\"match\":{\"symbol\":\"A
CWF\"}}]}]}}"
```

Example Request - cf_etf_dividend_array_object_search_none

POST http://localhost:9200/cf_etf_dividend_io/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "announcement.exDate": {
              "lte": "2015-12-01"
            }
          }
        }
      ],
    },
  },
}
```

```

        "range": {
            "announcement.amount": {
                "gte": 0.2
            }
        },
        {
            "match": {
                "symbol": "ACWF"
            }
        }
    ]
}

```

```

curl --location --request POST "http://localhost:9200/cf_etf_dividend_io/_search" --
header "Content-Type: application/json" --data "{ \"query\": { \"bool\": { \"must\":
[ { \"range\": { \"announcement.exDate\": { \"lte\": \"2015-12-01\" } } },
{ \"range\": { \"announcement.amount\": { \"gte\": 0.2 } } }, { \"match\":
{ \"symbol\": \"ACWF\" } } ] } } }"

```

Example Request - cf_etf_dividend_nested__mappings

GET http://localhost:9200/cf_etf_dividend_nested/_mappings

Headers

Content-Type	application/json
--------------	------------------

```

curl --location --request GET
"http://localhost:9200/cf_etf_dividend_nested/_mappings" --header "Content-Type:
application/json"

```

Example Request - cf_etf_dividend_nested_object_search_none

POST http://localhost:9200/cf_etf_dividend_nested/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
      "must": [
        {
          "match": {
            "symbol": "ACWF"
          }
        },
        {
          "nested": {
            "path": "announcement",
            "query": {
              "bool": {
                "must": [
                  {
                    "range": {
                      "announcement.exDate": {
                        "lte": "2015-12-01"
                      }
                    }
                  },
                  {
                    "range": {
                      "announcement.amount": {
                        "gte": 0.2
                      }
                    }
                  }
                ]
              }
            }
          }
        }
      ]
    }
  }
}
```

```
}
  }
}
```

```
curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search"
--header "Content-Type: application/json" --data
"{\"query\":{\"bool\":{\"must\":[{\"match\":{\"symbol\":\"ACWF\"}],\"nested\":{\"path\":\"announcement\",\"query\":{\"bool\":{\"must\":[{\"range\":{\"announcement.exDate\":{\"lte\":\"2015-12-01\"}}},{\"range\":{\"announcement.amount\":{\"gte\":\"0.2\"}}}}}}]}}}}\""
```

Example Request - cf_etf_dividend_nested_object_search_amount_0.1

POST http://localhost:9200/cf_etf_dividend_nested/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
      "must": [
        {
          "match": {
            "symbol": "ACWF"
          }
        },
        {
          "nested": {
            "path": "announcement",
            "query": {
              "bool": {
                "must": [
                  {
                    "range": {
                      "announcement.exDate": {
                        "lte": "2015-12-01"
                      }
                    }
                  }
                ]
              }
            }
          }
        }
      ]
    }
  }
}
```

```
{
  "range": {
    "announcement.amount": {
      "gte": 0.1
    }
  },
}
```

```
curl --location --request POST \

curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search"
--header "Content-Type: application/json" --data
{"query":{"bool":{"must":[{"match":{"symbol":"ACWF"}},{"nested":{"path":"announcement","query":{"bool":{"must":[{"range":{"announcement.exDate":{"lte":"2015-12-01"}},{"range":{"announcement.amount":{"gte":"0.1"}}}]}}]}}]}}
```

Example Request - cf_etf_dividend_nested_object_search_amount_0.1_inner_hit

POST http://localhost:9200/cf_etf_dividend_nested/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "bool": {
```



```

    "must": [
      {
        "match": {
          "symbol": "ACWF"
        }
      },
      {
        "nested": {
          "path": "announcement",
          "query": {
            "bool": {
              "must": [
                {
                  "range": {
                    "announcement.exDate": {
                      "lte": "2015-12-01"
                    }
                  }
                },
                {
                  "range": {
                    "announcement.amount": {
                      "gte": 0.1
                    }
                  }
                }
              ]
            }
          },
          "inner_hits": {}
        }
      }
    ]
  }
}

```

```

curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search"
--header "Content-Type: application/json" --data
{"query":{"bool":{"must":[{"match":{"symbol":"ACWF"}},{"nested":{"path":"announcement","query":{"bool":{"must":[{"range":{"announcement.exDate":{"lte":"2015-12-01"},

```

```
01\\\"}}},{\\\"range\\\":{\\\"announcement.amount\\\":{\\\"gte\\\":0.1}}}}},\\\"inner_hits\\\":{}}}}}}\\\"
```

Example Request - cf_etf_dividend_join_index

[PUT http://localhost:9200/cf_etf_dividend_join/](http://localhost:9200/cf_etf_dividend_join/)

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "mappings": {
    "dynamic": false,
    "properties": {
      "cf_etf_dividend": {
        "type": "join",
        "relations": {
          "cf_etf": "dividend"
        }
      },
      "symbol": {"type": "keyword"},
      "fund_name": {"type": "completion"},
      "rating": {"type": "byte"},
      "morningstar_category": {"type": "keyword"},
      "category": {"type": "keyword"},
      "family": {"type": "keyword"},
      "market_cap": {"type": "keyword"},
      "description": {
        "type": "text",
        "fields": {
          "raw": {
            "type": "keyword"
          }
        }
      },
      "analyzer": "description_analyzer",
      "search_analyzer": "description_analyzer"
    },
    "exchange": {"type": "keyword"},
    "amount": { "type": "float" },
  }
}
```

```

        "declaredDate": { "type": "date" },
        "exDate": { "type": "date" },
        "flag": { "type": "keyword"},
        "paymentDate": { "type": "date" },
        "recordDate": { "type": "date" },
        "currency": { "type": "keyword"},
        "frequency": { "type": "keyword"}
    }
},
    "settings": {
        "index": {
            "number_of_shards":3
        },
        "analysis": {
            "analyzer" : {
                "description_analyzer": {
                    "type": "custom",
                    "tokenizer": "description_tokenizer",
                    "filter": ["lowercase",
"description_pattern_replace_filter", "description_stemmer_filter",
"description_stop_filter", "description_length_filter", "unique"]
                }
            },
            "tokenizer": {
                "description_tokenizer" :
{"type":"char_group", "tokenize_on_chars": ["whitespace", "digit", "symbol", "\\n",
",", ":", "!", "?", ";", " ", "_", "{", "[", "}", "]", "(, )", "\\", "\/", "\""]}
            },
            "filter": {
                "description_pattern_replace_filter":
{"type":"pattern_replace", "pattern": "(\\w{2,})\\.\"", "replacement":"$1"},
                "description_stemmer_filter" :
{"type":"stemmer", "name":"light_english"},
                "description_stop_filter": {"type":"stop",
"stopwords_path":"stopwords"},
                "description_length_filter": {"type":"length",
"min":2}
            }
        }
    }
}

```

```
curl -XPUT localhost:9200/cf_etf_dividend_join -H "Content-Type:application/json" --data-binary @cf_etf_dividend_join_mappings.json
```

Example Request - cf_etf_acwf_join_bulk_index

POST localhost:9200/cf_etf_dividend_join/_bulk

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{"index":{"_index":"cf_etf_dividend_join", "_id":"12345678"}}
{"symbol": "ACWF", "fund_name": "iShares Edge MSCI Multifactor Global ETF", "rating": 3, "morningstar_category": "World Large Stock", "category": "Equity", "family": "iShares", "market_cap": "large", "description": "The investment seeks to track the investment results of the MSCI ACWI Diversified Multiple-Factor Index.\\n The fund generally will invest at least 90% of its assets in the component securities of the underlying index and in investments that have economic characteristics that are substantially identical to the component securities of the underlying index. The underlying index is designed to contain equity securities from the MSCI ACWI Index (the \\\"parent index\\\") that have high exposure to four investment style factors: value, quality, momentum and low size, while maintaining a level of risk similar to that of the parent index.", "exchange": "NYSE Arca", "cf_etf_dividend": {"name": "cf_etf"} }
```

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_bulk" --header "Content-Type: application/json" --data $'{"index":{"_index":"cf_etf_dividend_join", "_id":"12345678"}}\\n{"symbol":"ACWF", "fund_name":"iShares Edge MSCI Multifactor Global ETF", "rating":3, "morningstar_category":"World Large Stock", "category":"Equity", "family":"iShares", "market_cap":"large", "description":"The investment seeks to track the investment results of the MSCI ACWI Diversified Multiple-Factor Index.\\n The fund generally will invest at least 90% of its assets in the component securities of the underlying index and in investments that have economic characteristics that are substantially identical to the component securities of the underlying index. The underlying index is designed to contain equity securities from the MSCI ACWI Index (the \\\"parent index\\\") that have high exposure to four investment style factors: value, quality, momentum and low size, while maintaining a
```

```
level of risk similar to that of the parent index.", "exchange": "NYSE Arca",  
"cf_etf_dividend": {"name":"cf_etf"}}\n'
```

Example Request - cf_etf_dividend_join_search_all

POST localhost:9200/cf_etf_dividend_join/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{}
```

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header  
"Content-Type: application/json" --data "{}"
```

Example Request - cf_etf_dividend_join_bulk_index

POST localhost:9200/cf_etf_dividend_join/_bulk

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}  
{"cf_etf_dividend":  
  {"name":"dividend", "parent":"12345678"},  
  "exDate": "2017-12-19",  
  "paymentDate": "2017-12-26",  
  "recordDate": "2017-12-20",  
  "declaredDate": "2016-12-28",  
  "amount": 0.352788,  
  "flag": "",  
  "type": "Dividend income",  
  "qualified": "",  
  "indicated": "" }  
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
```

```
{"cf_etf_dividend":
  {"name":"dividend", "parent":"12345678"},
  "exDate": "2017-12-19",
  "paymentDate": "2017-12-26",
  "recordDate": "2017-12-20",
  "declaredDate": "2017-12-18",
  "amount": 0.352788,
  "flag": "FI", "type":
  "Dividend income",
  "qualified": "",
  "indicated": "" }
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
{"cf_etf_dividend":
  {"name":"dividend", "parent":"12345678"},
  "exDate": "2017-06-20",
  "paymentDate": "2017-06-26",
  "recordDate": "2017-06-22",
  "declaredDate": "2017-06-19",
  "amount": 0.243309,
  "flag": "",
  "type": "Dividend income",
  "qualified": "",
  "indicated": "" }
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
{"cf_etf_dividend":
  {"name":"dividend", "parent":"12345678"},
  "exDate": "2016-12-21",
  "paymentDate": "2016-12-28",
  "recordDate": "2016-12-23",
  "declaredDate": "2016-12-20",
  "amount": 0.23977,
  "flag": "",
  "type": "Dividend income",
  "qualified": "",
  "indicated": "" }
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
{"cf_etf_dividend":
  {"name":"dividend", "parent":"12345678"},
  "exDate": "2016-06-22",
  "paymentDate": "2016-06-28",
  "recordDate": "2016-06-24",
  "declaredDate": "2016-06-21",
  "amount": 0.227895,
```

```

        "flag": "",
        "type": "Dividend income",
        "qualified": "",
        "indicated": "" }
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
{"cf_etf_dividend":
    {"name":"dividend",
    "parent":"12345678"},
    "exDate": "2015-12-21",
    "paymentDate": "2015-12-28",
    "recordDate": "2015-12-23",
    "declaredDate": "2015-12-18",
    "amount": 0.103705,
    "flag": "",
    "type": "Dividend income",
    "qualified": "",
    "indicated": ""}
{"index":{"_index":"cf_etf_dividend_join", "routing":"12345678"}}
{"cf_etf_dividend":
    {"name":"dividend", "parent":"12345678"},
    "exDate": "2015-06-25",
    "paymentDate": "2015-07-01",
    "recordDate": "2015-06-29",
    "declaredDate": "2015-06-24",
    "amount": 0.111075,
    "flag": "",
    "type": "Dividend income",
    "qualified": "",
    "indicated": ""}

```

```

curl --location --request POST "localhost:9200/cf_etf_dividend_join/_bulk" --header
"Content-Type: application/json" --data
${'\{"index\":{"_index\":"cf_etf_dividend_join\","routing\":"12345678\"}\}\n\{"cf_et
f_dividend\":{"name\":"dividend\","parent\":"12345678\","exDate\":"2017-12-
19\","paymentDate\":"2017-12-26\","recordDate\":"2017-12-
20\","declaredDate\":"2016-12-
28\","amount\":0.352788,\nflag\":"FI\","type\":"Dividend
income\","qualified\":"\","indicated\":"\"}\}\n\{"index\":{"_index\":"cf_etf_divid
end_join\","routing\":"12345678\"}\}\n\{"cf_etf_dividend\":{"name\":"dividend\","p
arent\":"12345678\","exDate\":"2017-12-19\","paymentDate\":"2017-12-
26\","recordDate\":"2017-12-20\","declaredDate\":"2017-12-
18\","amount\":0.352788,\nflag\":"FI\","type\":"Dividend

```

```
income\","\qualified\":"\","\indicated\":"\","\n{\index\":{\_index\":"cf_etf_divid
end_join\","\routing\":"12345678\}}\n{\cf_etf_dividend\":{\name\":"dividend\","\p
arent\":"12345678\","\exDate\":"2017-06-20\","\paymentDate\":"2017-06-
26\","\recordDate\":"2017-06-22\","\declaredDate\":"2017-06-
19\","\amount\":0.243309,\flag\":"\","\type\":"Dividend
income\","\qualified\":"\","\indicated\":"\","\n{\index\":{\_index\":"cf_etf_divid
end_join\","\routing\":"12345678\}}\n{\cf_etf_dividend\":{\name\":"dividend\","\p
arent\":"12345678\","\exDate\":"2016-12-21\","\paymentDate\":"2016-12-
28\","\recordDate\":"2016-12-23\","\declaredDate\":"2016-12-
20\","\amount\":0.23977,\flag\":"\","\type\":"Dividend
income\","\qualified\":"\","\indicated\":"\","\n{\index\":{\_index\":"cf_etf_divid
end_join\","\routing\":"12345678\}}\n{\cf_etf_dividend\":{\name\":"dividend\","\p
arent\":"12345678\","\exDate\":"2016-06-22\","\paymentDate\":"2016-06-
28\","\recordDate\":"2016-06-24\","\declaredDate\":"2016-06-
21\","\amount\":0.227895,\flag\":"\","\type\":"Dividend
income\","\qualified\":"\","\indicated\":"\","\n{\index\":{\_index\":"cf_etf_divid
end_join\","\routing\":"12345678\}}\n{\cf_etf_dividend\":{\name\":"dividend\","\p
arent\":"12345678\","\exDate\":"2015-12-21\","\paymentDate\":"2015-12-
28\","\recordDate\":"2015-12-23\","\declaredDate\":"2015-12-
18\","\amount\":0.103705,\flag\":"\","\type\":"Dividend
income\","\qualified\":"\","\indicated\":"\","\n{\index\":{\_index\":"cf_etf_divid
end_join\","\routing\":"12345678\}}\n{\cf_etf_dividend\":{\name\":"dividend\","\p
arent\":"12345678\","\exDate\":"2015-06-25\","\paymentDate\":"2015-07-
01\","\recordDate\":"2015-06-29\","\declaredDate\":"2015-06-
24\","\amount\":0.111075,\flag\":"\","\type\":"Dividend
income\","\qualified\":"\","\indicated\":"\","\n'
```

Example Request - cf_etf_dividend_join__mappings

GET http://localhost:9200/cf_etf_dividend_join/_mappings

Headers

Content-Type	application/json
--------------	------------------

```
curl --location --request GET "http://localhost:9200/cf_etf_dividend_join/_mappings" -
-header "Content-Type: application/json"
```


Example Request - cf_etf_dividend_join_parent_id_query

POST cf_etf_dividend_join_parent_id_query

localhost:9200/cf_etf_dividend_join/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "parent_id": {
      "type": "dividend",
      "id": "12345678"
    }
  }
}
```

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header
"Content-Type: application/json" --data
"{\"query\":{\"parent_id\":{\"type\":\"dividend\",\"id\":\"12345678\"}}}"
```

Example Request - cf_etf_dividend_join_has_child_search_match_all

POST localhost:9200/cf_etf_dividend_join/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "has_child": {
```

```

        "type": "dividend",
        "min_children": 6,
        "max_children": 7,
        "query": {
            "match_all": {}
        }
    }
}

```

```

curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header
"Content-Type: application/json"--data
'{"query\":{\"has_parent\":{\"parent_type\":\"cf_etf\",\"query\":{\"match_all\":{}}}}}'

```

Example Request - cf_etf_dividend_join_has_child_search

POST localhost:9200/cf_etf_dividend_join/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```

{
  "query": {
    "has_child": {
      "type": "dividend",
      "query": {
        "prefix": {
          "currency": "USD"
        }
      }
    }
  }
}

```

```

curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header
"Content-Type: application/json" --data

```

```
"{"query":{"has_child":{"type":"dividend","query":{"prefix":{"currency":"USD"}}}}}"
```

Example Request - cf_etf_dividend_join_has_parent_search_match_all

POST localhost:9200/cf_etf_dividend_join/_search

Headers

Content-Type	application/json
--------------	------------------

Body raw (application/json)

```
{
  "query": {
    "has_parent": {
      "parent_type": "cf_etf",
      "query": {
        "match_all": {}
      }
    }
  }
}
```

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header
"Content-Type: application/json" --data
'{"query":{"has_parent":{"parent_type":"cf_etf","query":{"match_all":{}}}}}'
```

Example Request - cf_etf_dividend_join_has_parent_search

POST localhost:9200/cf_etf_dividend_join/_search?routing=12345678

Headers

Content-Type	application/json
--------------	------------------

Params

routing	12345678
---------	----------

Bodyraw (application/json)

```
{
  "query": {
    "has_parent": {
      "parent_type": "cf_etf",
      "query": {
        "match": {
          "symbol": "ACWF"
        }
      }
    }
  }
}
```

```
curl --location --request POST
"localhost:9200/cf_etf_dividend_join/_search?routing=12345678" --header "Content-Type:
application/json" --data
"{\"query\":{\"has_parent\":{\"parent_type\":\"cf_etf\",\"query\":{\"match\":{\"symbol
\":\"ACWF\"}}}}}"
```