

Chapter8

GET IEX_ACWF_chart_3m

<https://api.iextrading.com/1.0/stock/ACWF/chart/3m>

Example Request

IEX_ACWF_chart_3m

```
curl --location --request GET "https://api.iextrading.com/1.0/stock/ACWF/chart/3m"
```

GET cf_etf_historical_prices_mapping

http://localhost:9200/cf_etf_hist_price/

Example Request

cf_etf_historical_prices_mapping

```
curl --location --request GET "http://localhost:9200/cf_etf_hist_price/"
```

GET cf_etf_historical_prices document_count

http://localhost:9200/cf_etf_hist_price/_count

Example Request

cf_etf_historical_prices document_count

```
curl --location --request GET "http://localhost:9200/cf_etf_hist_price/_count"
```

POST cf_etf_hist_price_dcoument_search_all

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size":61,
  "query":{"match":{"symbol":"ACWF"}}
}
```

Example Request

cf_etf_hist_price_dcoument_search_all

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --data '${ \"size\":61, \"query\":{\"match\":
{\"symbol\":\"ACWF\"}} }'
```

POST cf_etf_hist_price_matrix_stats

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "statistics": {
      "matrix_stats": {
        "fields": ["volume", "changePercent"]
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_matrix_stats

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{  "size": 0,
  "query": { "match": { "symbol": "ACWF"}}, "aggs": { "statistics": { "matrix_stats":
{ "fields": ["volume", "changePercent"] } } } }'
```

GET count_cf_etf_hist_price_index_dcoument

http://localhost:9200/cf_etf_hist_price/_count

Example Request

count_cf_etf_hist_price_index_dcoument

```
curl --location --request GET "http://localhost:9200/cf_etf_hist_price/_count"
```

DEL delete_cf_etf_hist_price_index

http://localhost:9200/cf_etf_hist_price/

Example Request

delete_cf_etf_hist_price_index

```
curl --location --request DELETE "http://localhost:9200/cf_etf_hist_price/"
```

POST cf_etf_hist_price_avg_acwf_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

Accept

application/json

BODY

```
{  "size": 0,
```

```

    "query": { "match": { "symbol": "ACWF" } },
    "aggs": { "acwf_avg_change_price": { "avg": { "field": "change" } } }
  }
}

```

Example Request

cf_etf_hist_price_avg_acwf_change

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "Accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF" } }, "aggs": { "acwf_avg_change_price": { "avg":
{ "field": "change" } } } }'

```

POST cf_etf_hist_price_weight_avg_acwf_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "acwf_avg_change_with_vol_weight": {
      "weighted_avg": {
        "value": { "field": "change", "weight": { "field": "volume" } }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_weight_avg_acwf_change

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header

```

```
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": {"match": {"symbol": "ACWF"}}, "aggs": {
"acwf_avg_change_with_vol_weight": {"weighted_avg": {"value": {"field": "change"},
"weight": {"field": "volume"} } } } }'
```

POST cf_etf_morningstart_categories_cardinality

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "number_of_morningstar_category": {
      "cardinality": {"field": "morningstar_category"}
    }
  }
}
```

Example Request

cf_etf_morningstart_categories_cardinality

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type:
application/json" --header "accept: application/json" --data $'{"size": 0, "aggs": {
"number_of_morningstar_category": {"cardinality": {"field": "morningstar_category"} } }
}'
```

POST cf_etf_morningstart_categories_value_count

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "num_of_etfs_have_market_cap": {
      "value_count": {"field": "market_cap"}
    }
  }
}
```

Example Request

cf_etf_morningstart_categories_value_count

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --header "accept: application/json" --data $'{  \"size\": 0, \"aggs\": { \"num_of_etfs_have_market_cap\": { \"value_count\": {\"field\": \"market_cap\"} } } }'
```

POST cf_etf_dividend_acwf_amount_sum

http://localhost:9200/cf_etf_dividend_denormalize/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "sum_amount": {
      "sum": {"field": "amount"}
    }
  }
}
```

Example Request

cf_etf_dividend_acwf_amount_sum

```
curl --location --request POST "http://localhost:9200/cf_etf_dividend_denormalize/_search" --header "Content-Type: application/json" --data '${ "size": 0, "query": { "match": { "symbol": "ACWF" } }, "aggs": { "sum_amount": { "sum": { "field": "amount" } } } }
```

POST cf_etf_hist_price_acwf_minimum_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "minimum_open_price": {
      "min": { "field": "open" }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_minimum_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --header "accept: application/json" --data '${ "size": 0, "query": { "match": { "symbol": "ACWF" } }, "aggs": { "minimum_open_price": { "min": { "field": "open" } } } }
```

POST cf_etf_hist_price_acwf_maximum_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "maximum_open_price": {
      "max": { "field": "open" }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_maximum_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\": { \"match\": { \"symbol\": \"ACWF\" } },
  \"aggs\": { \"maximum_open_price\": { \"max\":
{ \"field\": \"open\" } } } }'
```

POST cf_etf_hist_price_acwf_stats_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "stats_open_price": {
      "stats": {"field": "open"}
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_stats_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\": { \"match\": { \"symbol\": \"ACWF\"}},
  \"aggs\": { \"stats_open_price\": { \"stats\":
    {\"field\": \"open\"} } } }'
```

POST cf_etf_hist_price_acwf_extended_stats_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "extend_stats_open_price": {
      "extended_stats": {"field": "open"}
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_extended_stats_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF"}}, "aggs": { "extend_stats_open_price": {
"extended_stats": { "field": "open" } } } }'
```

POST cf_etf_top_hit_morningstar_category

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "category_top_hits": {
      "terms": {
        "field": "morningstar_category",
        "size": 5
      },
      "aggs": {
        "category_top_hits": {
          "top_hits": {}
        }
      }
    }
  }
}
```

Example Request

cf_etf_top_hit_morningstar_category

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0, "aggs": { "category_top_hits": { "terms": { "field": "morningstar_category", "size": 5 }, "aggs": { "category_top_hits": { "top_hits": { } } } } } }'
```

POST cf_etf_hist_price_percentiles_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "open_price_percentiles": {
      "percentiles": { "field": "open" }
    }
  }
}
```

Example Request

cf_etf_hist_price_percentiles_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0, "query": { "match": { "symbol": "ACWF" } }, "aggs": { "open_price_percentiles": { "percentiles": { "field": "open" } } } }'
```

POST cf_etf_hist_price_percentile_rank_open_price

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "open_price_percentile_rank": {
      "percentile_ranks": {"field": "open", "values": 28.5}
    }
  }
}
```

Example Request

cf_etf_hist_price_percentile_rank_open_price

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\": { \"match\": { \"symbol\": \"ACWF\"}},
  \"aggs\": { \"open_price_percentile_rank\": {
    \"percentile_ranks\": {\"field\": \"open\", \"values\": 28.5} } } }'
```

POST cf_etf_hist_price_mad_acwf_percetChange

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
```

```

    "aggs": {
      "mad_change_percent": {
        "median_absolute_deviation": {"field": "changePercent" }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_mad_acwf_perceChange

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF"}}, "aggs": { "mad_change_percent": {
"median_absolute_deviation": {"field": "changePercent" } } } }'

```

POST cf_etf_hist_price_scripted_metric

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "highest_cp_cot_ratio": {
      "scripted_metric": {
        "init_script": "state.price_diff = new ArrayList()",
        "map_script": "double value = doc.changeOverTime.value==0 ? 0 :
doc.changePercent.value/(doc.changeOverTime.value*100); state.price_diff.add(value)",
        "combine_script": "return Collections.max(state.price_diff)",
        "reduce_script": "return Collections.max(states)"
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_scripted_metric

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{  \"size\": 0,
\"query\": { \"match\": { \"symbol\": \"ACWF\"}}, \"aggs\": { \"highest_cp_cot_ratio\": {
\"scripted_metric\": { \"init_script\": \"state.price_diff = new ArrayList()\",
\"map_script\": \"double value = doc.changeOverTime.value==0 ? 0 :
doc.changePercent.value/(doc.changeOverTime.value*100); state.price_diff.add(value)\",
\"combine_script\": \"return Collections.max(state.price_diff)\", \"reduce_script\": \"return
Collections.max(states)\", } } } }'
```

POST cf_etf_hist_price_acwf_histogram

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "acwf_histogram": {
      "histogram": {
        "field": "open",
        "interval": 1,
        "extended_bounds": { "min":24, "max":30}
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_histogram

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF"}}, "aggs": { "acwf_histogram": {
"histogram": { "field": "open", "interval": 1, "extended_bounds": { "min": 24,
"max": 30} } } } }'
```

POST cf_etf_hist_price_acwf_date_histogram

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "monthly_trading_days": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_date_histogram

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF"}}, "aggs": { "monthly_trading_days": {
"date_histogram": { "field": "date", "interval": "month", "format": "yyyy-MM-dd" } } }'
```

```
} }'
```

POST cf_etf_hist_price_acwf_auto_interval_date_histogram

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "monthly_trading_days": {
      "auto_date_histogram": {
        "field": "date",
        "buckets": "4",
        "format": "yyyy-MM-dd"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_auto_interval_date_histogram

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF" } }, "aggs": { "monthly_trading_days": {
"auto_date_histogram": { "field": "date", "buckets": "4", "format": "yyyy-MM-dd" } }
} }'
```

POST cf_etf_hist_price_acwf_ranges

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF"}},
  "aggs": {
    "monthly_trading_days": {
      "range": {
        "field": "date",
        "format": "yyyy-MM-dd",
        "ranges": [{"from": "2018-12-01"}, {"to": "2019-04-01"}, {"from": "2019-01-01", "to": "2019-02-01"}]
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_ranges

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF"}}, "aggs": { "monthly_trading_days": {
"range": { "field": "date", "format": "yyyy-MM-dd", "ranges": [{"from": "2018-12-01"}, {"to": "2019-04-01"}, {"from": "2019-01-01", "to": "2019-02-01"}] } } } }'
```

POST cf_etf_hist_price_acwf_date_ranges

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "monthly_trading_days": {
      "date_range": {
        "field": "date",
        "format": "yyyy-MM-dd",
        "ranges": [ { "from": "2018-12-01", "to": "2019-04-01", "from": "2019-01-01", "to": "2019-01-01" } ]
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_date_ranges

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query": { "match": { "symbol": "ACWF" } }, "aggs": { "monthly_trading_days": {
"date_range": { "field": "date", "format": "yyyy-MM-dd", "ranges": [ { "from": "2018-12-01", "to": "2019-04-01", "from": "2019-01-01", "to": "2019-01-01" } ] } } } }'
```

POST cf_etf_hist_price_filter_sub_aggs

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
```

```

    "size": 0,
    "aggs": {
      "avg_changePercent_at_date": {
        "filter": { "term": { "date": "2019-02-15" } },
        "aggs": { "avg_changePercent": { "avg": { "field": "changePercent" } } }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_filter_sub_aggs

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"aggs\": { \"avg_changePercent_at_date\": { \"filter\": { \"term\": { \"date\": \"2019-02-15\" } },
  \"aggs\": { \"avg_changePercent\": { \"avg\": { \"field\": \"changePercent\" } } } } }'

```

POST cf_etf_hist_price_filters

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,
  "query": { "term": { "date": "2019-02-15" } },
  "aggs": {
    "filters_avg_changePercent": {
      "filters": {
        "filters": {
          "less_than_avg": { "range": { "changePercent": { "lt": 0.60385 } } },
          "greater_than_avg": { "range": { "changePercent":
{ "gte": 0.60385 } } }
        }
      }
    }
  }
}

```

```
    }
}
```

Example Request

cf_etf_hist_price_filters

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{  \"size\": 0,
\"query\": { \"term\": {\"date\":\"2019-02-15\"}}, \"aggs\":{ \"filters_avg_changePercent\": {
\"filters\":{ \"filters\": { \"less_than_avg\": {\"range\": {\"changePercent\":
{\"lt\":0.60385}}}, \"greater_than_avg\":{\"range\": {\"changePercent\":{\"gte\":0.60385}}} } } }
} }'
```

POST cf_etf_hist_price_terms_rating

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "aggs":{
    "terms_on_rating": {
      "terms":{
        "field":"rating"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_terms_rating

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type:
```

```
application/json" --header "accept: application/json" --data $'{"size": 0, "aggs":{"terms_on_rating": { "terms":{"field":"rating" } } } }'
```

POST cf_etf_hist_price_significant_terms

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "rating": 5 } },
  "aggs": {
    "rating_vs_morningstar": {
      "significant_terms": {
        "field": "morningstar_category"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_significant_terms

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0, "query": { "match": { "rating": 5 } }, "aggs": { "rating_vs_morningstar": { "significant_terms": { "field": "morningstar_category" } } } }'
```

POST cf_etf_hist_price_significant_text

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"rating": 5}},
  "aggs": {
    "rating_vs_fund_name": {
      "significant_text": {
        "field": "fund_name",
        "exclude": ["us", "p", "s", "cap"],
        "size": 5
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_significant_text

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --header "accept: application/json" --data '${ \size\: 0, \query\: {\match\: {\rating\: 5}}, \aggs\: {\rating_vs_fund_name\: {\significant_text\: {\field\: \"fund_name\", \exclude\: [\"us\", \"p\", \"s\", \"cap\"], \size\: 5 } } } }'
```

POST cf_etf_hist_price_sampler

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "aggs": {
```

```

    "sampling": {
      "sampler": { "shard_size":150},
      "aggs": {
        "significant_terms_category": {
          "significant_terms": {
            "field": "category"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_sampler

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${
  \"size\": 0, \"aggs\": { \"sampling\": { \"sampler\": {
    \"shard_size\":150}, \"aggs\": { \"significant_terms_category\": { \"significant_terms\": {
    \"field\": \"category\" } } } } } }'

```

POST cf_etf_hist_price_diversified_sampler_10

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "aggs": {
    "sampling": {
      "diversified_sampler": {"field":"family", "shard_size":150,
"max_docs_per_value" : 10},
      "aggs": {
        "significant_terms_category": {
          "significant_terms": {
            "field": "category"
          }
        }
      }
    }
  }
}

```

```

    }
  }
}

```

Example Request

cf_etf_hist_price_diversified_sampler_10

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'{"size": 0, "aggs": { "sampling": { "diversified_sampler": {"field": "family", "shard_size": 150, "max_docs_per_value" : 10}, "aggs": { "significant_terms_category": { "significant_terms": { "field": "category" } } } } } }'

```

POST cf_etf_hist_price_diverified_sampler_61

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "aggs": {
    "sampling": {
      "diversified_sampler": {"field": "family", "shard_size": 150,
"max_docs_per_value" : 61},
      "aggs": {
        "significant_terms_category": {
          "significant_terms": {
            "field": "category"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_diverified_sampler_61

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${ \ "size": 0, \ "aggs": { \ "sampling": { \ "diversified_sampler": { \ "field": \ "family", \ "shard_size": 150, \ "max_docs_per_value" : 61}, \ "aggs": { \ "significant_terms_category": { \ "significant_terms": { \ "field": \ "category" } } } } } } }
```

POST cf_etf_dividend_nested_amount

http://localhost:9200/cf_etf_dividend_nested/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "per_symbol": {
      "terms": { "field": "symbol", "size": 3 },
      "aggs": {
        "total_dividend": {
          "nested": {
            "path": "announcement"
          },
          "aggs": {
            "total_amount": { "sum": { "field": "announcement.amount" } }
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_dividend_nested_amount

```
curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search" --header "Content-Type: application/json" --data '${ \ "size": 0, \ "aggs": { \ "per_symbol": { \ "terms": {
```

```
{\"field\": \"symbol\", \"size\": 3}, \"aggs\": { \"total_dividend\": { \"nested\": {
\"path\": \"announcement\" }, \"aggs\": { \"total_amount\": { \"sum\": { \"field\":
\"announcement.amount\"} } } } }
```

POST cf_etf_dividend_reverse_nested

http://localhost:9200/cf_etf_dividend_nested/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "etf_category_distribution_on_dividend_type": {
      "nested": {
        "path": "announcement"
      },
      "aggs": {
        "by_dividend_type": {
          "terms": { "field": "announcement.type" },
          "aggs": {
            "total_by_etf_category": {
              "reverse_nested": {},
              "aggs": {
                "category": { "terms": { "field":
"category" } }
              }
            }
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_dividend_reverse_nested

```
curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search" --header
```

```
"Content-Type: application/json" --data '${ \"size\":0, \"aggs\": {
\"etf_category_distribution_on_dividend_type\":{ \"nested\": { \"path\": \"announcement\" },
\"aggs\":{ \"by_dividend_type\": { \"terms\": {\"field\": \"announcement.type\"}, \"aggs\":
{ \"total_by_etf_category\":{ \"reverse_nested\":{ }, \"aggs\": { \"category\":{ \"terms\":
{\"field\": \"category\"}} } } } } } } } }
```

POST cf_etf_global

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size":0,
  "query":{"prefix": {"family":"iShares"}},
  "aggs": {
    "ishares_avg_rating": {"avg": {"field":"rating"}},
    "overall_avg_rating": {"global":{ }, "aggs":{"global_avg_rating":{"avg":
{"field":"rating"}}}}
  }
}
```

Example Request

cf_etf_global

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type:
application/json" --data '${ \"size\":0, \"query\":{ \"prefix\": {\"family\": \"iShares\"}},
\"aggs\": { \"ishares_avg_rating\": {\"avg\": {\"field\": \"rating\"}}, \"overall_avg_rating\":
{ \"global\":{ }, \"aggs\":{ \"global_avg_rating\":{ \"avg\":{ \"field\": \"rating\"}}}} } }
```

POST cf_etf_missing_category

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size":0,
  "aggs": {
    "not_rated_count": {
      "missing": {"field":"rating"}
    }
  }
}
```

Example Request

cf_etf_missing_category

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${ "size":0, "aggs": { "not_rated_count": { "missing": {"field":"rating"} } } }'
```

POST cf_etf_composite

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "query": {"query_string": {"query": "rating:[4 TO 5]"}},
  "size": 0,
  "aggs": {
    "multi_sources": {
      "composite": {
        "sources": [
          {"family": {"terms": {"field":"family"}}},
          {"rating": {"terms":{"field":"rating"}}}
        ],
        "size":5
      }
    }
  }
}
```

```

    }
  }
}

```

Example Request

cf_etf_composite

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'{"query": {"query_string": {"query": "\"rating:[4 TO 5]\""}, "size": 0, "aggs": { "multi_sources": { "composite": { "sources": [ {"family": {"terms": {"field": "\"family\""}}, {"rating": {"terms": {"field": "\"rating\""} } ], "size": 5 } } } } }'

```

POST cf_etf_adjacent_matrix

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "aggs": {
    "adjacency_filters": {
      "adjacency_matrix": {
        "filters": {
          "rating_gte_5": {"range":{"rating":{"gte":5}}},
          "family_prefix_A": {"prefix":{"family":"iShares"}}
        }
      }
    }
  }
}

```

Example Request

cf_etf_adjacent_matrix

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'{"size": 0, "aggs": { "adjacency_filters": { "adjacency_matrix": { "filters": { "rating_gte_5": { "range": { "rating": { "gte": 5 } } }, "family_prefix_A": { "prefix": { "family": { "iShares" } } } } } } } }
```

POST cf_etf_dividend_join_parent_aggs

localhost:9200/cf_etf_dividend_join/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "cf_etf": {
      "parent": {
        "type": "dividend"
      },
      "aggs": {
        "count": { "value_count": { "field": "symbol" } }
      }
    }
  }
}
```

Example Request

cf_etf_dividend_join_parent_aggs

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header "Content-Type: application/json" --data $'{"size": 0, "aggs": { "cf_etf": { "parent": { "type": "dividend" }, "aggs": { "count": { "value_count": { "field": "symbol" } } } } } }
```

POST cf_etf_dividend_join_children_aggs

localhost:9200/cf_etf_dividend_join/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size":0,
  "aggs": {
    "dividend":{
      "children": {
        "type": "dividend"
      },
      "aggs": {
        "total_dividend":{"sum":{"field":"amount"}}
      }
    }
  }
}
```

Example Request

cf_etf_dividend_join_children_aggs

```
curl --location --request POST "localhost:9200/cf_etf_dividend_join/_search" --header "Content-Type: application/json" --data '${ "size":0, "aggs": { "dividend":{ "children": { "type": "dividend" }, "aggs": { "total_dividend":{"sum":{"field":"amount"}} } } } }'
```

POST cf_etf_hist_price_acwf_avg_monthly_close

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
```

```

"query":{"match": {"symbol":"ACWF"}},
"aggs":{"
  "monthly_avg_close": {
    "date_histogram":{"
      "field": "date",
      "interval": "month",
      "format": "yyyy-MM-dd"
    },
    "aggs":{"
      "avg_close_on_month":{"
        "avg":{"field":"close"}
      }
    }
  },
  "overall_avg_close":{"
    "avg_bucket": {
      "buckets_path": "monthly_avg_close>avg_close_on_month"
    }
  }
}
}

```

Example Request

cf_etf_hist_price_acwf_avg_monthly_close

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"monthly_avg_close": {
"date_histogram":{"field": "date", "interval": "month", "format": "yyyy-MM-dd" },
"aggs":{"avg_close_on_month":{"avg":{"field":"close"} } } }, "overall_avg_close":{"
"avg_bucket": { "buckets_path": "monthly_avg_close>avg_close_on_month" } } } }'

```

POST cf_etf_hist_price_acwf_max_monthly_avg_close

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_avg_close": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "avg_close_on_month": {
          "avg": {"field": "close"}
        }
      }
    },
    "overall_max_avg_close": {
      "max_bucket": {
        "buckets_path": "monthly_avg_close>avg_close_on_month"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_max_monthly_avg_close

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
  "query": {"match": {"symbol": "ACWF"}}, "aggs": { "monthly_avg_close": {
    "date_histogram": { "field": "date", "interval": "month", "format": "yyyy-MM-dd" },
    "aggs": { "avg_close_on_month": { "avg": {"field": "close"} } } },
  "overall_max_avg_close": { "max_bucket": { "buckets_path":
    "monthly_avg_close>avg_close_on_month" } } } }'
```

POST cf_etf_hist_price_acwf_min_monthly_avg_close

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_avg_close": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "avg_close_on_month": {
          "avg": {"field": "close"}
        }
      }
    },
    "overall_min_avg_close": {
      "min_bucket": {
        "buckets_path": "monthly_avg_close>avg_close_on_month"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_min_monthly_avg_close

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"monthly_avg_close": {
"date_histogram":{"field":"date","interval":"month","format":"yyyy-MM-dd" },
"aggs":{"avg_close_on_month":{"avg":{"field":"close"}} } } },
"overall_min_avg_close":{"min_bucket": { "buckets_path":
"monthly_avg_close>avg_close_on_month" } } } }'
```

POST cf_etf_hist_price_acwf_sum_monthly_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": {
          "sum": {"field": "change"}
        }
      }
    },
    "overall_monthly_change": {
      "sum_bucket": {
        "buckets_path": "monthly_change>change_on_month"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_sum_monthly_change

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '{"size": 0,
"query":{"match": {"symbol": "ACWF"}}, "aggs": { "monthly_change": {
"date_histogram": { "field": "date", "interval": "month", "format": "yyyy-MM-dd" },
"aggs": { "change_on_month": { "sum": {"field": "change"} } } },
"overall_monthly_change": { "sum_bucket": { "buckets_path":
```

```
\ "monthly_change>change_on_month\" } } } }'
```

POST cf_etf_hist_price_acwf_statistics_monthly_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": {
          "sum": {"field": "change"}
        }
      }
    },
    "stats_monthly_change": {
      "stats_bucket": {
        "buckets_path": "monthly_change>change_on_month"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_statistics_monthly_change

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
```

```
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match": {"symbol":"ACWF"}}, "aggs":{"monthly_change": {
"date_histogram":{"field": "date", "interval": "month", "format": "yyyy-MM-dd" },
"aggs":{"change_on_month":{"sum":{"field":"change"}} } } },
"overall_monthly_change":{"sum_bucket": { "buckets_path":
"monthly_change>change_on_month" } } } }'
```

POST cf_etf_hist_price_acwf_extended_statistics_monthly_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": {
          "sum": {"field": "change"}
        }
      }
    },
    "extended_stats_monthly_change": {
      "extended_stats_bucket": {
        "buckets_path": "monthly_change>change_on_month"
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_extended_statistics_monthly_change

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{
  \"size\": 0,
  \"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
    \"date_histogram\":{ \"field\": \"date\", \"interval\": \"month\", \"format\": \"yyyy-MM-dd\" },
    \"aggs\":{ \"change_on_month\":{ \"sum\":{\"field\": \"change\"} } } },
    \"extended_stats_monthly_change\":{ \"extended_stats_bucket\": { \"buckets_path\":
      \"monthly_change>change_on_month\" } } } }'
```

POST cf_etf_hist_price_acwf_percentiles_weekly_change

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query":{ "match": { "symbol": "ACWF" } },
  "aggs":{
    "weekly_change": {
      "date_histogram":{
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs":{
        "change_on_week":{
          "sum":{ "field": "change" }
        }
      }
    },
    "percentile_weekly_change":{
      "percentiles_bucket": {
        "buckets_path": "weekly_change>change_on_week"
      }
    }
  }
}
```

```

    }
  }
}

```

Example Request

cf_etf_hist_price_acwf_percentiles_weekly_change

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"weekly_change":{"date_histogram":
{"field":"date", "interval":"week", "format":"yyyy-MM-dd"}, "aggs":{"
"change_on_week":{"sum":{"field":"change"}} } }, "percentile_weekly_change":{"
"percentiles_bucket":{"buckets_path":"weekly_change>change_on_week"} } } }'

```

POST cf_etf_hist_price_acwf_cumulative_sum

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": {
          "sum": {"field": "change"}
        },
        "cumulative_change": {
          "cumulative_sum": {

```

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
'Content-Type: application/json' --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
  \"date_histogram\":{ \"field\": \"date\", \"interval\": \"month\", \"format\": \"yyyy-MM-dd\" },
  \"aggs\":{ \"change_on_month\":{ \"sum\":{\"field\": \"change\"} }, \"cumulative_change\":{
  \"cumulative_sum\": { \"buckets_path\": \"change_on_month\" } } } } } }
```

POST cf_etf_hist_price_acwf_derivative

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": {
```


Example Request

cf_etf_hist_price_acwf_derivative

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
  \"date_histogram\":{ \"field\": \"date\", \"interval\": \"month\", \"format\": \"yyyy-MM-dd\" },
  \"aggs\":{ \"change_on_month\":{ \"sum\":{\"field\": \"change\"} }, \"first_order_derivative\":{
  \"derivative\": { \"buckets_path\": \"change_on_month\" } }, \"second_order_derivative\": {
  \"derivative\": { \"buckets_path\": \"first_order_derivative\" } } } } } }
```

POST cf_etf_hist_price_bucket_script

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
    "size": 0,
```

```

"query":{"match": {"symbol":"ACWF"}},
"aggs":{"
  "monthly_change": {
    "date_histogram":{"
      "field": "date",
      "interval": "month",
      "format": "yyyy-MM-dd"
    },
    "aggs":{"
      "change_on_month":{"sum":{"field":"change"}},
      "min_change_on_month":{"min":{"field":"change"}},
      "max_change_on_month":{"max":{"field":"change"}},
      "range_of_change":{"
        "bucket_script":{"
          "buckets_path":{"
            "min_value":"min_change_on_month",
            "max_value":"max_change_on_month"
          },
          "script":"params.max_value - params.min_value"
        }
      }
    }
  }
}
}
}
}
}

```

Example Request

cf_etf_hist_price_bucket_script

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match": {"symbol":"ACWF"}}, "aggs":{"monthly_change": {
"date_histogram":{"field": "date", "interval": "month", "format": "yyyy-MM-dd" },
"aggs":{"change_on_month":{"sum":{"field":"change"}}, "min_change_on_month": {
{"min":{"field":"change"}}, "max_change_on_month":{"max":{"field":"change"}},
"range_of_change":{"bucket_script":{"buckets_path":{"
"min_value":"min_change_on_month", "max_value":"max_change_on_month" },
"script":"params.max_value - params.min_value" } } } } } }'

```

POST cf_etf_hist_price_bucket_selector

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "negative_monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "month",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "change_on_month": { "sum": {"field": "change"} },
        "filter_positive_change_on_month": {
          "bucket_selector": {
            "buckets_path": {
              "monthly_change_value": "change_on_month"
            },
            "script": "params.monthly_change_value<0"
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_bucket_selector

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"negative_monthly_change": {
"date_histogram":{"field": "date", "interval": "month", "format": "yyyy-MM-dd" },
"aggs":{"change_on_month":{"sum":{"field":"change"}},
"filter_positive_change_on_month":{"bucket_selector":{"buckets_path":{"
monthly_change_value":"change_on_month" }, "script":"params.monthly_change_value<0" } }
} } } }
```

POST cf_etf_dividend_nested_amount bucket_sort

http://localhost:9200/cf_etf_dividend_nested/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size":0,
  "aggs": {
    "per_symbol":{
      "terms": {"field":"symbol"},
      "aggs":{
        "total_dividend": {
          "nested": {
            "path":"announcement"
          },
          "aggs": {
            "total_amount": {"sum": {"field":
"announcement.amount"}}
          }
        },
        "sort": {
          "bucket_sort": {
            "sort": [{"total_dividend.total_amount":
{"order":"desc"}}],
            "from":0,
            "size":3
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_dividend_nested_amount bucket_sort

```
curl --location --request POST "http://localhost:9200/cf_etf_dividend_nested/_search" --header
"Content-Type: application/json" --data '${ \"size\":0, \"aggs\": { \"per_symbol\":{ \"terms\":
{\"field\": \"symbol\"}, \"aggs\":{ \"total_dividend\": { \"nested\": { \"path\": \"announcement\"
}, \"aggs\": { \"total_amount\": {\"sum\": {\"field\": \"announcement.amount\"}} } }, \"sort\": {
\"bucket_sort\": { \"sort\": [{\"total_dividend.total_amount\":{\"order\": \"desc\"}}]},
\"from\":0, \"size\":3 } } } } } '

```

POST cf_etf_hist_price_acwf_serial_diff

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "serial_diff_weekly_avg_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_avg_change": {
          "avg": { "field": "change" }
        },
        "weekly_avg_serial_diff": {
          "serial_diff": {
            "buckets_path": "weekly_avg_change",
            "lag": 1
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_serial_diff

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --data '${  \"size\": 0, \"query\":{\"match\":
{\"symbol\": \"ACWF\"}}, \"aggs\":{ \"serial_diff_weekly_avg_change\": { \"date_histogram\":{
\"field\": \"date\", \"interval\": \"week\", \"format\": \"yyyy-MM-dd\" }, \"aggs\":{
\"weekly_avg_change\":{ \"avg\":{\"field\": \"change\"} }, \"weekly_avg_serial_diff\": {
\"serial_diff\": { \"buckets_path\": \"weekly_avg_change\", \"lag\":1 } } } } } '

```

POST cf_etf_hist_price_acwf_moving_avg_simple

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": {"field": "change"}
        },
        "weekly_moving_avg": {
          "moving_avg": {
            "buckets_path": "weekly_change",
            "model": "simple",

```

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '{"size": 0,
"query": {"match": {"symbol": "ACWF"}}, "aggs": {"monthly_change": {
"date_histogram": {"field": "date", "interval": "week", "format": "yyyy-MM-dd" },
"aggs": {"weekly_change": {"sum": {"field": "change" } }, "weekly_moving_avg": {
"moving_avg": {"buckets_path": "weekly_change", "model": "simple", "window": 4,
"predict": 4 } } } } }
```

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
    },
  }
}
```

```

    "aggs": {
      "weekly_change": {
        "sum": { "field": "change" }
      },
      "weekly_moving_avg": {
        "moving_avg": {
          "buckets_path": "weekly_change",
          "model": "linear",
          "window": 4,
          "predict": 4
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_acwf_moving_avg_linear

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'  {"size": 0,
  "query": { "match": { "symbol": "ACWF" } }, "aggs": { "monthly_change": {
    "date_histogram": { "field": "date", "interval": "week", "format": "yyyy-MM-dd" },
    "aggs": { "weekly_change": { "sum": { "field": "change" } }, "weekly_moving_avg": {
      "moving_avg": { "buckets_path": "weekly_change", "model": "linear", "window": 4,
        "predict": 4 } } } } } }'

```

POST cf_etf_hist_price_acwf_moving_avg_ewma

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,

```



```

"query":{"match": {"symbol":"ACWF"}},
"aggs":{"
  "monthly_change": {
    "date_histogram":{"
      "field": "date",
      "interval": "week",
      "format": "yyyy-MM-dd"
    },
    "aggs": {
      "weekly_change":{"
        "sum":{"field":"change"}
      },
      "weekly_moving_avg": {
        "moving_avg":{"
          "buckets_path":"weekly_change",
          "model":"ewma",
          "settings":{"alpha":0.3},
          "window":4,
          "predict":4
        }
      }
    }
  }
}
}
}
}

```

Example Request

cf_etf_hist_price_acwf_moving_avg_ewma

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match": {"symbol":"ACWF"}}, "aggs":{"monthly_change": {
"date_histogram":{"field": "date", "interval": "week", "format": "yyyy-MM-dd" },
"aggs": { "weekly_change":{"sum":{"field":"change"} }, "weekly_moving_avg": {
"moving_avg":{"buckets_path":"weekly_change", "model":"ewma", "settings":
{"alpha":0.3}, "window":4, "predict":4 } } } } }'

```

POST cf_etf_hist_price_acwf_moving_avg_holt_linear

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": {"field": "change"}
        },
        "weekly_moving_avg": {
          "moving_avg": {
            "buckets_path": "weekly_change",
            "model": "holt",
            "settings": {"alpha": 0.3, "beta": 0.3},
            "window": 4,
            "predict": 4
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_moving_avg_holt_linear

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '${
  \"size\": 0,
  \"query\": {\"match\": {\"symbol\": \"ACWF\"}},
  \"aggs\": {
    \"monthly_change\": {
      \"date_histogram\": {
        \"field\": \"date\",
        \"interval\": \"week\",
        \"format\": \"yyyy-MM-dd\"
      },
      \"aggs\": {
        \"weekly_change\": {
          \"sum\": {\"field\": \"change\"}
        },
        \"weekly_moving_avg\": {
          \"moving_avg\": {
            \"buckets_path\": \"weekly_change\",
            \"model\": \"holt\",
            \"settings\": {
```

```
{\"alpha\":0.3, \"beta\":0.3}, \"window\":4, \"predict\":4 } } } } }
```

POST cf_etf_hist_price_acwf_moving_avg_holt_winters

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": {"field": "change"}
        },
        "weekly_moving_avg": {
          "moving_avg": {
            "buckets_path": "weekly_change",
            "model": "holt_winters",
            "settings": {"type": "mult", "alpha": 0.8, "beta": 0.3,
              "gamma": 0.3, "period": 1},
            "window": 4,
            "predict": 4
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_moving_avg_holt_winters

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{  \"size\": 0,
\"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
\"date_histogram\":{ \"field\": \"date\", \"interval\": \"week\", \"format\": \"yyyy-MM-dd\" },
\"aggs\": { \"weekly_change\":{ \"sum\":{\"field\": \"change\"} }, \"weekly_moving_avg\": {
\"moving_avg\":{ \"buckets_path\": \"weekly_change\", \"model\": \"holt_winters\", \"settings\":
{\"type\" : \"mult\", \"alpha\":0.8, \"beta\":0.3, \"gamma\":0.3, \"period\":1}, \"window\":4,
\"predict\":4 } } } } } }'
```

POST cf_etf_hist_price_acwf_moving_fn_max

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": { "field": "change" }
        },
        "max_weekly_change": {
          "moving_fn": {
            "buckets_path": "weekly_change",
            "script": "MovingFunctions.max(values)",
            "window": 4
          }
        }
      }
    }
  }
}
```

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '{  \"size\": 0,
\"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
\"date_histogram\":{ \"field\": \"date\", \"interval\": \"week\", \"format\": \"yyyy-MM-dd\" },
\"aggs\": { \"weekly_change\":{ \"sum\":{\"field\": \"change\"} }, \"max_weekly_change\": {
\"moving_fn\":{ \"buckets_path\": \"weekly_change\", \"script\": \"MovingFunctions.max(values)\",
\"window\": 4 } } } } } }
```

POST cf_etf_hist_price_acwf_moving_fn_min

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
```


BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "weekly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": {"field": "change"}
        },
        "weekly_change_unweightedAvg": {
          "moving_fn": {
            "buckets_path": "weekly_change",
            "script": "MovingFunctions.unweightedAvg(values)",
            "window": 4
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_moving_fn_unweightedAvg

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"weekly_change":{"date_histogram":
{"field":"date", "interval":"week", "format":"yyyy-MM-dd"}, "aggs":{"
weekly_change":{"sum":{"field":"change"}}, "weekly_change_unweightedAvg":{"
moving_fn":{"buckets_path":"weekly_change",
"script":"MovingFunctions.unweightedAvg(values)", "window":4 } } } } }'
```

POST cf_etf_hist_price_acwf_moving_fn_linearweightedAvg

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"symbol": "ACWF"}},
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": {"field": "change"}
        },
        "weekly_change_unweightedAvg": {
          "moving_fn": {
            "buckets_path": "weekly_change",
            "script": "MovingFunctions.linearWeightedAvg(values)",
            "window": 4
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_moving_fn_linearweightedAvg

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data '{"size": 0,
"query": {"match": {"symbol": "ACWF"}}, "aggs": { "weekly_change": { "date_histogram":
{ "field": "date", "interval": "week", "format": "yyyy-MM-dd" }, "aggs": {
"weekly_change": { "sum": {"field": "change"} }, "weekly_change_unweightedAvg": {
"moving_fn": { "buckets_path": "weekly_change",
```

```
\script\": \"MovingFunctions.unweightedAvg(values)\", \"window\":4 } } } } }
```

POST cf_etf_hist_price_acwf_moving_fn_stdDev

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": { "field": "change" }
        },
        "weekly_change_stdDev": {
          "moving_fn": {
            "buckets_path": "weekly_change",
            "script": "MovingFunctions.stdDev(values,
MovingFunctions.unweightedAvg(values))",
            "window": 4
          }
        }
      }
    }
  }
}
```

Example Request

cf_etf_hist_price_acwf_moving_fn_stdDev

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{"size": 0,
"query":{"match":{"symbol":"ACWF"}}, "aggs":{"monthly_change":{"
"date_histogram":{"field":"date","interval":"week","format":"yyyy-MM-dd" },
"aggs":{"weekly_change":{"sum":{"field":"change" } }, "weekly_change_stdDev":{"
"moving_fn":{"buckets_path":"weekly_change","script":"MovingFunctions.stdDev(values,
MovingFunctions.unweightedAvg(values))"},"window":4 } } } } } }
```

POST cf_etf_hist_price_acwf_moving_fn_ewma

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```
{
  "size": 0,
  "query":{"match":{"symbol":"ACWF"}},
  "aggs":{"
    "monthly_change": {
      "date_histogram":{"
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change":{"
          "sum":{"field":"change"}
        },
        "weekly_change_ewma": {
          "moving_fn":{"
            "buckets_path":"weekly_change",
            "script":"MovingFunctions.ewma(values, 0.3)",
            "window":4
          }
        }
      }
    }
  }
```

```

    }
  }
}

```

Example Request

cf_etf_hist_price_acwf_moving_fn_ewma

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header
"Content-Type: application/json" --header "accept: application/json" --data $'{  \"size\": 0,
\"query\":{\"match\": {\"symbol\": \"ACWF\"}}, \"aggs\":{ \"monthly_change\": {
\"date_histogram\":{ \"field\": \"date\", \"interval\": \"week\", \"format\": \"yyyy-MM-dd\" },
\"aggs\": { \"weekly_change\":{ \"sum\":{\"field\": \"change\"} }, \"weekly_change_ewma\": {
\"moving_fn\":{ \"buckets_path\": \"weekly_change\", \"script\": \"MovingFunctions.ewma(values,
0.3)\"}, \"window\":4 } } } } } }'

```

POST cf_etf_hist_price_acwf_moving_fn_holt

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

accept

application/json

BODY

```

{
  "size": 0,
  "query": { "match": { "symbol": "ACWF" } },
  "aggs": {
    "monthly_change": {
      "date_histogram": {
        "field": "date",
        "interval": "week",
        "format": "yyyy-MM-dd"
      },
      "aggs": {
        "weekly_change": {
          "sum": { "field": "change" }
        }
      }
    }
  }
}

```



```
{
  "aggs":{
    "terms_on_rating": {
      "terms":{
        "field":"rating"
      }
    }
  },
  "post_filter":{
    "range": {
      "rating": {"gte":5}
    }
  }
}
```

Example Request

cf_etf_hist_price_terms_rating post_filter

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --header "accept: application/json" --data $'{
  "aggs":{
    "terms_on_rating": {
      "terms":{
        "field":"rating"
      }
    }
  },
  "post_filter":{
    "range": {
      "rating": {"gte":5}
    }
  }
}'
```

CHAPTER8