

Chapter10

POST cf_etf_morningstar_category_list

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "aggs": {
    "get_categories": { "terms": { "field": "morningstar_category", "size": 100 } }
  }
}
```

Example Request

cf_etf_morningstar_category_list

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '{"size":0,"aggs":{"get_categories":{"terms":{"field":"morningstar_category","size":100}}}}
```

POST cf_etf_Diversified_Emerging_Mkts ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "morningstar_category": "Diversified Emerging Mkts" } },
  "aggs" : {
    "LIST ETFs": {
      "terms": { "field": "symbol", "size": 16 }
    }
  }
}
```

```

    }
}
}

```

Example Request

cf_etf_Diversified_Emerging_Mkts ETFs

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${"size":0,"query":{"match":{"morningstar_category":"Diversified Emerging Mkts"}},\n"aggs":{"LIST ETFs":{"terms":{"field":"symbol","size":16}}}}'

```

POST cf_etf_hist_price_Diversified_Emerging_Mkts_changes_2018_12_26

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 16,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2018-12-26" } } },
      "should": [
        { "term": { "symbol": "dem" } },
        { "term": { "symbol": "dgre" } },
        { "term": { "symbol": "dgs" } },
        { "term": { "symbol": "dvem" } },
        { "term": { "symbol": "ediv" } },
        { "term": { "symbol": "eemx" } },
        { "term": { "symbol": "emcg" } },
        { "term": { "symbol": "emdvd" } },
        { "term": { "symbol": "esge" } },
        { "term": { "symbol": "ewx" } },
        { "term": { "symbol": "pxh" } },
        { "term": { "symbol": "qemm" } },
        { "term": { "symbol": "rfem" } },
        { "term": { "symbol": "spem" } },
        { "term": { "symbol": "uevm" } },
        { "term": { "symbol": "xsoe" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "day_momentum" : {

```

```

    "date_histogram" : {
      "field" : "date",
      "interval" : "1d",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric":{
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}

```

Example Request

cf_etf_hist_prirce_Diversified_Emerging_Mkts_changes_2018_12_26

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-
Type: application/json" --data '{"size":16,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2018-12-26"}}},"should":[{"term":{"symbol":"dem"}}, {"term":{"symbol":"dgre"}}, {"term":{"symbol":"dgs"}}, {"term":{"symbol":"dvem"}}, {"term":{"symbol":"ediv"}}, {"term":{"symbol":"eemx"}}, {"term":{"symbol":"emcg"}}, {"term":{"symbol":"emdv"}}, {"term":{"symbol":"esge"}}, {"term":{"symbol":"ewx"}}, {"term":{"symbol":"pxh"}}, {"term":{"symbol":"qemm"}}, {"term":{"symbol":"rfem"}}, {"term":{"symbol":"spem"}}, {"term":{"symbol":"uevm"}}, {"term":{"symbol":"xsoe"}}, {"minimum_should_match":1}], "aggs":{"day_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd","min_doc_count":1}, "aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}}'

```

POST cf_etf_hist_prirce_Diversified_Emerging_Mkts_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "dem" } },
        { "term": { "symbol": "dgre" } },
        { "term": { "symbol": "dgs" } },
        { "term": { "symbol": "dvem" } },
        { "term": { "symbol": "ediv" } },
        { "term": { "symbol": "eemx" } },
        { "term": { "symbol": "emcg" } },
        { "term": { "symbol": "emdv" } },
        { "term": { "symbol": "esge" } },
        { "term": { "symbol": "ewx" } },
        { "term": { "symbol": "pxh" } },
        { "term": { "symbol": "qemm" } },
        { "term": { "symbol": "rfem" } },
        { "term": { "symbol": "spem" } },
        { "term": { "symbol": "uevm" } },
        { "term": { "symbol": "xsoe" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "daily_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1d",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_price_Diversified_Emerging_Mkts_changes_daily

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"dem"}},{term":{"symbol":"dgre"}},{term":{"symbol":"dgs"}},{term":{"symbol":"dvem"}},{term":{"symbol":"ediv"}},{term":{"symbol":"eemx"}},{term":{"symbol":"emcg"}},{term":{"symbol":"emd"}},{term":{"symbol":"esge"}},{term":{"symbol":"ewx"}},{term":{"symbol":"pxh"}},{term":{"symbol":"qemm"}},{term":{"symbol":"rfem"}},{term":{"symbol":"spem"}},{term":{"symbol":"uevm"}},{term":{"symbol":"xsoe"}}]},"minimum_should_match":1},"aggs":{"daily_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd"},"min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.total=0","map_script":"state.total.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.total) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}'}
```

POST cf_etf_hist_price_Diversified_Emerging_Mkts_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 100,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "dem" } },
        { "term": { "symbol": "dgre" } },
        { "term": { "symbol": "dgs" } },
        { "term": { "symbol": "dvem" } },
        { "term": { "symbol": "ediv" } },
        { "term": { "symbol": "eemx" } },
        { "term": { "symbol": "emcg" } },
        { "term": { "symbol": "emd" } },
        { "term": { "symbol": "esge" } },
        { "term": { "symbol": "ewx" } },
        { "term": { "symbol": "pxh" } },
        { "term": { "symbol": "qemm" } },
        { "term": { "symbol": "rfem" } },
        { "term": { "symbol": "spem" } },
        { "term": { "symbol": "uevm" } },
        { "term": { "symbol": "xsoe" } }
      ],
      "minimum_should_match": 1
    }
  }
}
```

```

    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1w",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric":{
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t in
state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_pricce_Diversified_Emerging_Mkts_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":100,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"dem"}},{term":{"symbol":"dgre"}},{term":{"symbol":"dgs"}},{term":{"symbol":"dvem"}},{term":{"symbol":"ediv"}},{term":{"symbol":"eemx"}},{term":{"symbol":"emcg"}},{term":{"symbol":"emd"}},{term":{"symbol":"esge"}},{term":{"symbol":"ewx"}},{term":{"symbol":"pxh"}},{term":{"symbol":"qemm"}},{term":{"symbol":"rfem"}},{term":{"symbol":"spem"}},{term":{"symbol":"uevm"}},{term":{"symbol":"xsoe"}]}],"minimum_should_match":1},"aggs":{"weekly_momentum":{"date_histogram":{"field":"date","interval":"1w","format":"yyyy-MM-dd","min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]}}}}}'

```

POST cf_etf_Large Blend ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"morningstar_category": "Large Blend"}},
  "aggs" : {
    "LIST ETFs": {
      "terms": {"field": "symbol", "size": 14}
    }
  }
}
```

Example Request

cf_etf_Large Blend ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${"size":0,"query":{"match":{"morningstar_category":"Large Blend"}},\n"aggs":{"LIST ETFs":{"terms":{"field":"symbol","size":14}}}}'
```

POST cf_etf_hist_price_Large Blend_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "eps" } },
        { "term": { "symbol": "esgu" } },
        { "term": { "symbol": "ext" } },
        { "term": { "symbol": "lglv" } },
        { "term": { "symbol": "qual" } },
        { "term": { "symbol": "qus" } },
        { "term": { "symbol": "she" } },
        { "term": { "symbol": "sphb" } },
        { "term": { "symbol": "splg" } },
        { "term": { "symbol": "sptm" } },
        { "term": { "symbol": "spyx" } },
      ]
    }
  }
}
```

```

        {"term": {"symbol": "sye"}},
        {"term": {"symbol": "ulvm"}},
        {"term": {"symbol": "usmf"}}
    ],
    "minimum_should_match": 1
  }
},
"aggs" : {
  "daily_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1d",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric": {
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}

```

Example Request

cf_etf_hist_pricer_Large Blend_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"eps"}}, {"term":{"symbol":"esgu"}}, {"term":{"symbol":"ext"}}, {"term":{"symbol":"lglv"}}, {"term":{"symbol":"qual"}}, {"term":{"symbol":"qus"}}, {"term":{"symbol":"she"}}, {"term":{"symbol":"sphb"}}, {"term":{"symbol":"splg"}}, {"term":{"symbol":"sptm"}}, {"term":{"symbol":"spyx"}}, {"term":{"symbol":"sye"}}, {"term":{"symbol":"ulvm"}}, {"term":{"symbol":"usmf"}}],"minimum_should_match":1},"aggs":{"daily_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd","min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}}'

```

POST cf_etf_hist_pricer_Large Blend_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "eps" } },
        { "term": { "symbol": "esgu" } },
        { "term": { "symbol": "ext" } },
        { "term": { "symbol": "lglv" } },
        { "term": { "symbol": "qual" } },
        { "term": { "symbol": "qus" } },
        { "term": { "symbol": "she" } },
        { "term": { "symbol": "sphb" } },
        { "term": { "symbol": "splg" } },
        { "term": { "symbol": "sptm" } },
        { "term": { "symbol": "spyx" } },
        { "term": { "symbol": "sye" } },
        { "term": { "symbol": "ulvm" } },
        { "term": { "symbol": "usmf" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1w",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

```
}
```

Example Request

cf_etf_hist_pricce_Large Blend_changes_weekly

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'\{"size\:0,\\"query\":{\\"bool\":{\\"must\":{\\"range\":{\\"date\":{\\"gte\":\\"2018-12-26\\",\\"lte\":\\"2019-03-25\\"}}},\\"should\":[{\\"term\":{\\"symbol\":\\"eps\\"}},{\\"term\":{\\"symbol\":\\"esgu\\"}},{\\"term\":{\\"symbol\":\\"ext\\"}},{\\"term\":{\\"symbol\":\\"lglv\\"}},{\\"term\":{\\"symbol\":\\"qual\\"}},{\\"term\":{\\"symbol\":\\"qus\\"}},{\\"term\":{\\"symbol\":\\"she\\"}},{\\"term\":{\\"symbol\":\\"sphb\\"}},{\\"term\":{\\"symbol\":\\"splg\\"}},{\\"term\":{\\"symbol\":\\"sptm\\"}},{\\"term\":{\\"symbol\":\\"spyx\\"}},{\\"term\":{\\"symbol\":\\"syx\\"}},{\\"term\":{\\"symbol\":\\"ulvm\\"}},{\\"term\":{\\"symbol\":\\"usmf\\"}}],\\"minimum_should_match\:1}},\\"aggs\":{\\"weekly_momentum\":{\\"date_histogram\":{\\"field\":\\"date\\",\\"interval\":\\"1w\\",\\"format\":\\"yyyy-MM-dd\\",\\"min_doc_count\:1}},\\"aggs\":{\\"cv\":{\\"scripted_metric\":{\\"init_script\":\\"state.total=\\",\\"map_script\":\\"state.total.add(doc.change.value*doc.volume.value)\\",\\"combine_script\":\\"double total=0, total_count=0; for (t in state.total) {total += t; total_count += 1} return total/total_count\\",\\"reduce_script\":\\"return states[0]\\"}}}}}}'
```

POST cf_etf_Miscellaneous Region ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"morningstar_category": "Miscellaneous Region"}},
  "aggs" : {
    "DEM ETFs": {
      "terms": {"field": "symbol", "size": 14}
    }
  }
}
```

Example Request

cf_etf_Miscellaneous Region ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'\{"size\:0,\\"query\":{\\"match\":{\\"morningstar_category\":\\"Miscellaneous Region\\"}},\\"aggs\":{\\"DEM ETFs\":{\\"terms\":{\\"field\":\\"symbol\\",\\"size\":14}}}}}'
```

POST cf_etf_hist_price_Miscellaneous Region_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 1,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "agt" } },
        { "term": { "symbol": "ause" } },
        { "term": { "symbol": "dxge" } },
        { "term": { "symbol": "enor" } },
        { "term": { "symbol": "erus" } },
        { "term": { "symbol": "ewl" } },
        { "term": { "symbol": "fcan" } },
        { "term": { "symbol": "fgm" } },
        { "term": { "symbol": "fko" } },
        { "term": { "symbol": "fni" } },
        { "term": { "symbol": "fsz" } },
        { "term": { "symbol": "gulf" } },
        { "term": { "symbol": "heww" } },
        { "term": { "symbol": "icol" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs": {
    "daily_momentum": {
      "date_histogram": {
        "field": "date",
        "interval": "1d",
        "format": "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv": {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

```

    }
  }
}
}
}

```

Example Request

cf_etf_hist_price_Miscellaneous Region_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":1,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"agt"}},{term":{"symbol":"ause"}},{term":{"symbol":"dxge"}},{term":{"symbol":"enor"}},{term":{"symbol":"erus"}},{term":{"symbol":"ewl"}},{term":{"symbol":"fcan"}},{term":{"symbol":"fgm"}},{term":{"symbol":"fko"}},{term":{"symbol":"fni"}},{term":{"symbol":"fsz"}},{term":{"symbol":"gulf"}},{term":{"symbol":"heww"}},{term":{"symbol":"icol"}}]},"minimum_should_match":1},"aggs":{"daily_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd"},"min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}'

```

POST cf_etf_hist_price_Miscellaneous Region_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "dem" } },
        { "term": { "symbol": "dgre" } },
        { "term": { "symbol": "dgs" } },
        { "term": { "symbol": "dvem" } },
        { "term": { "symbol": "ediv" } },
        { "term": { "symbol": "eemx" } },
        { "term": { "symbol": "emcg" } },
        { "term": { "symbol": "emdv" } },
        { "term": { "symbol": "esge" } },

```

```

        {"term": {"symbol": "ewx"}}
    ],
    "minimum_should_match": 1
  }
},
"aggs" : {
  "weekly_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1w",
      "format" : "yyyy-MM-dd",
      "min_doc_count" : 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric": {
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}
}

```

Example Request

cf_etf_hist_pirce_Miscellaneous Region_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"dem"}},{term":{"symbol":"dgre"}},{term":{"symbol":"dgs"}},{term":{"symbol":"dvem"}},{term":{"symbol":"ediv"}},{term":{"symbol":"eemx"}},{term":{"symbol":"emcg"}},{term":{"symbol":"emd"}},{term":{"symbol":"esge"}},{term":{"symbol":"ewx"}]}],"minimum_should_match":1},"aggs":{"weekly_momentum":{"date_histogram":{"field":"date","interval":"1w","format":"yyyy-MM-dd","min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}}'

```

POST cf_etf_Europe Stock ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"morningstar_category": "Europe Stock"}},
  "aggs" : {
    "DEM ETFs": {
      "terms": {"field": "symbol", "size": 11}
    }
  }
}
```

Example Request

cf_etf_Europe Stock ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${"size":0,"query":{"match":{"morningstar_category":"Europe Stock"}},\n"aggs":{"DEM ETFs":{"terms":{"field":"symbol","size":11}}}}'
```

POST cf_etf_hist_price_Europe Stock_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "ddez" } },
        { "term": { "symbol": "dfe" } },
        { "term": { "symbol": "edom" } },
        { "term": { "symbol": "eudg" } },
        { "term": { "symbol": "eusc" } },
        { "term": { "symbol": "ezu" } },
        { "term": { "symbol": "feu" } },
        { "term": { "symbol": "hedj" } },
        { "term": { "symbol": "hezu" } },
        { "term": { "symbol": "ieur" } },
      ]
    }
  }
}
```

```

        {"term": {"symbol": "smez"}}
    ],
    "minimum_should_match": 1
  }
},
"aggs" : {
  "daily_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1d",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric": {
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}

```

Example Request

cf_etf_hist_prirce_Europe Stock_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"ddez"}},{term":{"symbol":"dfe"}},{term":{"symbol":"edom"}},{term":{"symbol":"eudg"}},{term":{"symbol":"eusc"}},{term":{"symbol":"ezu"}},{term":{"symbol":"feu"}},{term":{"symbol":"hedj"}},{term":{"symbol":"hezu"}},{term":{"symbol":"ieur"}},{term":{"symbol":"smez"}]}],"minimum_should_match":1},"aggs":{"daily_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd","min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}}'

```

POST cf_etf_hist_prirce_Europe Stock_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "ddez" } },
        { "term": { "symbol": "dfe" } },
        { "term": { "symbol": "edom" } },
        { "term": { "symbol": "eudg" } },
        { "term": { "symbol": "eusc" } },
        { "term": { "symbol": "ezu" } },
        { "term": { "symbol": "feu" } },
        { "term": { "symbol": "hedj" } },
        { "term": { "symbol": "hezu" } },
        { "term": { "symbol": "ieur" } },
        { "term": { "symbol": "smez" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs": {
    "weekly_momentum": {
      "date_histogram": {
        "field": "date",
        "interval": "1w",
        "format": "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv": {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_pricer_Europe Stock_changes_weekly

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data '{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"ddez"}},{term":{"symbol":"dfe"}},{term":{"symbol":"edom"}},{term":{"symbol":"eudg"}},{term":{"symbol":"eusc"}},{term":{"symbol":"ezu"}},{term":{"symbol":"feu"}},{term":{"symbol":"hedj"}},{term":{"symbol":"hezu"}},{term":{"symbol":"ieur"}},{term":{"symbol":"smez"}]}]},"minimum_should_match":1},"aggs":{"weekly_momentum":{"date_histogram":{"field":"date","interval":"1w","format":"yyyy-MM-dd"},"min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}'
```

POST cf_etf_Technology ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query":{"match": {"morningstar_category":"Technology"}},
  "aggs" : {
    "DEM ETFs": {
      "terms": {"field":"symbol", "size":11}
    }
  }
}
```

Example Request

cf_etf_Technology ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '{"size":0,"query":{"match":{"morningstar_category":"Technology"}},"aggs":{"DEM ETFs":{"terms":{"field":"symbol","size":11}}}}'
```

POST cf_etf_hist_pricer_Technology_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "cibr" } },
        { "term": { "symbol": "fdn" } },
        { "term": { "symbol": "fone" } },
        { "term": { "symbol": "ftxl" } },
        { "term": { "symbol": "fxl" } },
        { "term": { "symbol": "qtec" } },
        { "term": { "symbol": "skyy" } },
        { "term": { "symbol": "tdiv" } },
        { "term": { "symbol": "xntk" } },
        { "term": { "symbol": "xsd" } },
        { "term": { "symbol": "xsw" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs": {
    "daily_momentum": {
      "date_histogram": {
        "field": "date",
        "interval": "1d",
        "format": "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv": {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_prirce_Technology_changes_daily

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"cibr"}},{term":{"symbol":"fdn"}},{term":{"symbol":"fone"}},{term":{"symbol":"ftxl"}},{term":{"symbol":"fxl"}},{term":{"symbol":"qtec"}},{term":{"symbol":"skyy"}},{term":{"symbol":"tdiv"}},{term":{"symbol":"xntk"}},{term":{"symbol":"xsd"}},{term":{"symbol":"xsw"}}]},"minimum_should_match":1},"aggs":{"daily_momentum":{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-dd"},"min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.total= []","map_script":"state.total.add(doc.change.value*doc.volume.value)","combine_script":"double total=0, total_count=0; for (t in state.total) {total += t; total_count += 1} return total/total_count","reduce_script":"return states[0]"}}}}}}'
```

POST cf_etf_hist_prirce_Technology_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "cibr" } },
        { "term": { "symbol": "fdn" } },
        { "term": { "symbol": "fone" } },
        { "term": { "symbol": "ftxl" } },
        { "term": { "symbol": "fxl" } },
        { "term": { "symbol": "qtec" } },
        { "term": { "symbol": "skyy" } },
        { "term": { "symbol": "tdiv" } },
        { "term": { "symbol": "xntk" } },
        { "term": { "symbol": "xsd" } },
        { "term": { "symbol": "xsw" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
```

```

        "field" : "date",
        "interval" : "1w",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
    },
    "aggs": {
        "cv" : {
            "scripted_metric":{
                "init_script": "state.totals=[]",
                "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
                "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
                "reduce_script": "return states[0]"
            }
        }
    }
}
}
}

```

Example Request

cf_etf_hist_pricer_Technology_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-
Type: application/json" --data '{"size":0,"query":{"bool":{"must":{"range":{"date":{"
gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"cibr"}},
{"term":{"symbol":"fdn"}}, {"term":{"symbol":"fone"}}, {"term":{"symbol":"ftxl"}},
{"term":{"symbol":"fxl"}}, {"term":{"symbol":"qtec"}}, {"term":{"symbol":"skyy"}},
{"term":{"symbol":"tdiv"}}, {"term":{"symbol":"xntk"}}, {"term":{"symbol":"xsd"}},
{"term":{"symbol":"xsw"}}],"minimum_should_match":1},"aggs":{"weekly_momentum":
{"date_histogram":{"field":"date","interval":"1w","format":"yyyy-MM-
dd","min_doc_count":1},"aggs":{"cv":{"scripted_metric":{"init_script":"state.totals=
[]","map_script":"state.totals.add(doc.change.value*doc.volume.value)","combine_script":
"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return
total/total_count","reduce_script":"return states[0]}}}}}}'

```

POST cf_etf_Foreign Large Blend ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
    "size": 0,

```

```

"query":{"match": {"morningstar_category":"Foreign Large Blend"}},
"aggs" : {
  "DEM ETFs": {
    "terms": {"field":"symbol", "size":11}
  }
}
}

```

Example Request

cf_etf_Foreign Large Blend ETFs

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '{"size":0,"query":{"match":{"morningstar_category":"Foreign Large Blend"}},\n"aggs":{"DEM ETFs":{"terms":{"field":"symbol","size":11}}}}'

```

POST cf_etf_hist_price_Foreign Large Blend_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query":{
    "bool":{
      "must": {"range":{"date":{"gte":"2018-12-26", "lte":"2019-03-25"}}},
      "should": [
        {"term": {"symbol":"efax"}},
        {"term": {"symbol":"esgd"}},
        {"term": {"symbol":"hdmv"}},
        {"term": {"symbol":"idmo"}},
        {"term": {"symbol":"ipkw"}},
        {"term": {"symbol":"iqlt"}},
        {"term": {"symbol":"qefa"}},
        {"term": {"symbol":"rdfi"}},
        {"term": {"symbol":"spdw"}}
      ],
      "minimum_should_match":1
    }
  },
  "aggs" : {
    "daily_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1d",

```

```

        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
    },
    "aggs": {
        "cv" : {
            "scripted_metric":{
                "init_script": "state.totals=[]",
                "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
                "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
                "reduce_script": "return states[0]"
            }
        }
    }
}
}
}

```

Example Request

cf_etf_hist_prirce_Foreign Large Blend_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-
Type: application/json" --data $'{"size":0,"query":{"bool":{"must":{"range":{"date":
{"gte":"2018-12-26","lte":"2019-03-25"}}},"should":[{"term":{"symbol":"efax"}},
{"term":{"symbol":"esgd"}}, {"term":{"symbol":"hdmv"}}, {"term":{"symbol":"idmo"}},
{"term":{"symbol":"ipkw"}}, {"term":{"symbol":"iqlt"}}, {"term":{"symbol":"qefa"}},
{"term":{"symbol":"rdfi"}}, {"term":
{"symbol":"spdw"}}]}, {"minimum_should_match":1}}, {"aggs":{"daily_momentum":
{"date_histogram":{"field":"date","interval":"1d","format":"yyyy-MM-
dd","min_doc_count":1}, {"aggs":{"cv":{"scripted_metric":{"init_script": "state.totals=
[]", "map_script": "state.totals.add(doc.change.value*doc.volume.value)", "combine_script":
"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return
total/total_count", "reduce_script": "return states[0]"}}}}}}'

```

POST cf_etf_hist_prirce_Foreign Large Blend_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
```

```

"size": 0,
"query":{
  "bool":{
    "must": {"range":{"date":{"gte":"2018-12-26", "lte":"2019-03-25"}}},
    "should": [
      {"term": {"symbol":"efax"}},
      {"term": {"symbol":"esgd"}},
      {"term": {"symbol":"hdmv"}},
      {"term": {"symbol":"idmo"}},
      {"term": {"symbol":"ipkw"}},
      {"term": {"symbol":"iqlt"}},
      {"term": {"symbol":"qefa"}},
      {"term": {"symbol":"rdfi"}},
      {"term": {"symbol":"spdw"}}
    ],
    "minimum_should_match":1
  }
},
"aggs" : {
  "weekly_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1w",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric":{
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "double total=0, total_count=0; for (t in
states) {total += t; total_count += 1} return total/total_count"
        }
      }
    }
  }
}
}

```

Example Request

cf_etf_hist_pricce_Foreign Large Blend_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{
  "size": 0,
  "query":{
    "bool":{
      "must": {"range":{"date":{"gte":"2018-12-26", "lte":"2019-03-25"}}},
      "should": [
        {"term": {"symbol":"efax"}},
        {"term": {"symbol":"esgd"}},
        {"term": {"symbol":"hdmv"}},
        {"term": {"symbol":"idmo"}},
        {"term": {"symbol":"ipkw"}},
        {"term": {"symbol":"iqlt"}},
        {"term": {"symbol":"qefa"}},
        {"term": {"symbol":"rdfi"}},
        {"term": {"symbol":"spdw"}}
      ],
      "minimum_should_match":1
    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1w",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric":{
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "double total=0, total_count=0; for (t in
states) {total += t; total_count += 1} return total/total_count"
          }
        }
      }
    }
  }
}'

```

```
{\"term\": {\"symbol\": \"spdw\"} } ], \"minimum_should_match\": 1 } }, \"aggs\": { \"weekly_momentum\" : { \"date_histogram\" : { \"field\" : \"date\", \"interval\" : \"1w\", \"format\" : \"yyyy-MM-dd\", \"min_doc_count\": 1 }, \"aggs\": { \"cv\" : { \"scripted_metric\": { \"init_script\": \"state.totals= []\", \"map_script\": \"state.totals.add(doc.change.value*doc.volume.value)\", \"combine_script\": \"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count\", \"reduce_script\": \"return status[0]\"}}}}}}'}
```

POST cf_etf_China Region ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": { "match": { "morningstar_category": "China Region" } },
  "aggs" : {
    "DEM ETFs": {
      "terms": { "field": "symbol" }
    }
  }
}
```

Example Request

cf_etf_China Region ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '{ \"size\": 0, \"query\": { \"match\": { \"morningstar_category\": \"China Region\" } }, \"aggs\" : { \"DEM ETFs\": { \"terms\": { \"field\": \"symbol\" } } } }'
```

POST cf_etf_hist_price_China Region changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

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



```

    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "cnya" } },
        { "term": { "symbol": "cxse" } },
        { "term": { "symbol": "ecns" } },
        { "term": { "symbol": "ewh" } },
        { "term": { "symbol": "ewt" } },
        { "term": { "symbol": "gxc" } },
        { "term": { "symbol": "mchi" } },
        { "term": { "symbol": "wchn" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "daily_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1d",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_prirce_China Region_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-
Type: application/json" --data '{"size": 0, "query": { "bool": { "must": { "range":
{ "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } }, "should": [ { "term":
{ "symbol": "cnya" } }, { "term": { "symbol": "cxse" } }, { "term": { "symbol": "ecns" } },
{ "term": { "symbol": "ewh" } }, { "term": { "symbol": "ewt" } }, { "term": { "symbol": "gxc" } },
{ "term": { "symbol": "mchi" } }, { "term": { "symbol": "wchn" } } ], "minimum_should_match": 1 }
}, "aggs" : { "daily_momentum" : { "date_histogram" : { "field": "date", "interval":
"1d", "format": "yyyy-MM-dd", "min_doc_count": 1 }, "aggs": { "cv" : {
"scripted_metric": { "init_script": "state.totals=[]", "map_script":
"state.totals.add(doc.change.value*doc.volume.value)", "combine_script": "double total=0,

```

```
total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count\",
\"reduce_script\": \"return states[0]\"}}}}}}'
```

POST cf_etf_hist_price_China Region_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "cnya" } },
        { "term": { "symbol": "cxse" } },
        { "term": { "symbol": "ecns" } },
        { "term": { "symbol": "ewh" } },
        { "term": { "symbol": "ewt" } },
        { "term": { "symbol": "gxc" } },
        { "term": { "symbol": "mchi" } },
        { "term": { "symbol": "wchn" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs": {
    "weekly_momentum": {
      "date_histogram": {
        "field": "date",
        "interval": "1w",
        "format": "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv": {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}
```

```

    }
}

```

Example Request

cf_etf_hist_pricce_China Region_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{
  "size": 0, "query": { "bool": { "must": { "range": {
    "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } }, "should": [ { "term": {
    "symbol": "cnya" } }, { "term": { "symbol": "cxse" } }, { "term": { "symbol": "ecns" } },
    { "term": { "symbol": "ewh" } }, { "term": { "symbol": "ewt" } }, { "term": { "symbol": "gxc" } },
    { "term": { "symbol": "mchi" } }, { "term": { "symbol": "wchn" } } ], "minimum_should_match": 1 }
  }, "aggs" : { "weekly_momentum" : { "date_histogram" : { "field" : "date", "interval" :
    "1w", "format" : "yyyy-MM-dd", "min_doc_count": 1 }, "aggs": { "cv" : {
    "scripted_metric": { "init_script": "state.totals=[]", "map_script":
    "state.totals.add(doc.change.value*doc.volume.value)", "combine_script": "double total=0,
    total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count",
    "reduce_script": "return states[0]" } } } } } }'

```

POST cf_etf_High Yield Bond ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": { "match": { "morningstar_category": "High Yield Bond" } },
  "aggs" : {
    "DEM ETFs": {
      "terms": { "field": "symbol" }
    }
  }
}

```

Example Request

cf_etf_High Yield Bond ETFs

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'{
  "size": 0, "query": { "match": { "morningstar_category": "High Yield Bond" } }, "aggs" : { "DEM ETFs": { "terms": { "field": "symbol" } } } }'

```

POST cf_etf_hist_price_High Yield Bond_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "faln" } },
        { "term": { "symbol": "hyls" } },
        { "term": { "symbol": "jphy" } },
        { "term": { "symbol": "sfhy" } },
        { "term": { "symbol": "shyg" } },
        { "term": { "symbol": "sjnk" } },
        { "term": { "symbol": "ushy" } },
        { "term": { "symbol": "wfhy" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "daily_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1d",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_pricer_High Yield Bond_changes_daily

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{
  "size": 0, "query": { "bool": { "must": { "range": {
    "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } }, "should": [ { "term": {
    "symbol": "faln" } }, { "term": { "symbol": "hyls" } }, { "term": { "symbol": "jphy" } },
    { "term": { "symbol": "sfhy" } }, { "term": { "symbol": "shyg" } }, { "term": {
    "symbol": "sjnk" } }, { "term": { "symbol": "ushy" } }, { "term": { "symbol": "wfhy" } } ],
    "minimum_should_match": 1 } } }, "aggs" : { "daily_momentum" : { "date_histogram" : { "field" :
    "date", "interval" : "1d", "format" : "yyyy-MM-dd", "min_doc_count": 1 }, "aggs": {
    "cv" : { "scripted_metric": { "init_script": "state.totals=[]", "map_script":
    "state.totals.add(doc.change.value*doc.volume.value)", "combine_script": "double total=0,
    total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count",
    "reduce_script": "return states[0]" } } } } } }
```

POST cf_etf_hist_pricer_High Yield Bond_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "faln" } },
        { "term": { "symbol": "hyls" } },
        { "term": { "symbol": "jphy" } },
        { "term": { "symbol": "sfhy" } },
        { "term": { "symbol": "shyg" } },
        { "term": { "symbol": "sjnk" } },
        { "term": { "symbol": "ushy" } },
        { "term": { "symbol": "wfhy" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1w",
```

```

        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
    },
    "aggs": {
        "cv" : {
            "scripted_metric":{
                "init_script": "state.totals=[]",
                "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
                "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
                "reduce_script": "return states[0]"
            }
        }
    }
}

```

Example Request

cf_etf_hist_pirce_High Yield Bond_changes_weekly

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-
Type: application/json" --data $'  \size\": 0, \query\":{ \bool\":{ \must\": {\"range\":
{\"date\":{\"gte\":\"2018-12-26\", \lte\":\"2019-03-25\"}}}, \should\": [ {\"term\":
{\"symbol\":\"faln\"}}, {\"term\": {\"symbol\":\"hyls\"}}, {\"term\": {\"symbol\":\"jphy\"}},
{\"term\": {\"symbol\":\"sfhy\"}}, {\"term\": {\"symbol\":\"shyg\"}}, {\"term\":
{\"symbol\":\"sjnk\"}}, {\"term\": {\"symbol\":\"ushy\"}}, {\"term\": {\"symbol\":\"wfly\"}} ],
\"minimum_should_match\":1 } }, \aggs\": { \weekly_momentum\": { \date_histogram\": { \field\":
\"date\", \interval\": \"1w\", \format\": \"yyyy-MM-dd\", \min_doc_count\": 1 }, \aggs\": {
\"cv\": { \scripted_metric\":{ \init_script\": \"state.totals=[]\", \map_script\":
\"state.totals.add(doc.change.value*doc.volume.value)\", \combine_script\": \"double total=0,
total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count\",
\"reduce_script\": \"return states[0]\"}}}}}'

```

POST cf_etf_Ultrashort Bond ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```

{
    "size": 0,
    "query":{ "match": { "morningstar_category": "Ultrashort Bond" } },
    "aggs" : {

```

```

        "DEM_ETFs": {
            "terms": {"field": "symbol"}
        }
    }
}

```

Example Request

cf_etf_Ultrashort Bond ETFs

```

curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data $'{
  "size": 0,
  "query": {
    "match": {
      "morningstar_category": "Ultrashort Bond"
    }
  },
  "aggs": {
    "DEM_ETFs": {
      "terms": {
        "field": "symbol"
      }
    }
  }
}'

```

POST cf_etf_hist_price_Ultrashort Bond_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": {
        "range": {
          "date": {
            "gte": "2018-12-26",
            "lte": "2019-03-25"
          }
        }
      },
      "should": [
        {
          "term": {
            "symbol": "bil"
          }
        },
        {
          "term": {
            "symbol": "flot"
          }
        },
        {
          "term": {
            "symbol": "flrn"
          }
        },
        {
          "term": {
            "symbol": "ftsm"
          }
        },
        {
          "term": {
            "symbol": "jpst"
          }
        },
        {
          "term": {
            "symbol": "near"
          }
        },
        {
          "term": {
            "symbol": "ulst"
          }
        },
        {
          "term": {
            "symbol": "vrig"
          }
        }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs": {
    "daily_momentum": {
      "date_histogram": {
        "field": "date",
        "interval": "1d",
        "format": "yyyy-MM-dd",
        "min_doc_count": 1
      }
    }
  }
}

```

```

    },
    "aggs": {
      "cv" : {
        "scripted_metric":{
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}

```

Example Request

cf_etf_hist_price_Ultrashort Bond_changes_daily

```

curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'  \
  "size": 0, \
  "query":{ \
    "bool":{ \
      "must": { \
        "range":{ \
          "date":{ \
            "gte":"2018-12-26", \
            "lte":"2019-03-25" \
          } \
        } \
      }, \
      "should": [ \
        { \
          "term":{ \
            "symbol":"bil" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"flot" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"flrn" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"ftsm" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"jpst" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"near" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"ulst" \
          } \
        }, \
        { \
          "term":{ \
            "symbol":"vrig" \
          } \
        } \
      ] \
    }, \
    "minimum_should_match":1 \
  } \
}, \
  "aggs": { \
    "daily_momentum": { \
      "date_histogram": { \
        "field": "date", \
        "interval": "1d", \
        "format": "yyyy-MM-dd", \
        "min_doc_count": 1 \
      }, \
      "aggs": { \
        "cv": { \
          "scripted_metric":{ \
            "init_script": "state.totals=[]", \
            "map_script": "state.totals.add(doc.change.value*doc.volume.value)", \
            "combine_script": "double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count", \
            "reduce_script": "return states[0]" \
          } \
        } \
      } \
    } \
  } \
}'

```

POST cf_etf_hist_price_Ultrashort Bond_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query":{
    "bool":{
      "must": {"range":{"date":{"gte":"2018-12-26", "lte":"2019-03-25"}}},
      "should": [

```



```

        {"term": {"symbol": "bil"}},
        {"term": {"symbol": "flot"}},
        {"term": {"symbol": "flrn"}},
        {"term": {"symbol": "ftsm"}},
        {"term": {"symbol": "jpst"}},
        {"term": {"symbol": "near"}},
        {"term": {"symbol": "ulst"}},
        {"term": {"symbol": "vrig"}}
    ],
    "minimum_should_match": 1
  }
},
"aggs" : {
  "weekly_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1w",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric": {
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}

```

Example Request

cf etf hist prirce Ultrashort Bond changes weekly

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data '{\n    \"size\": 0,\n    \"query\": {\n      \"bool\": {\n        \"must\": [\n          {\"range\": {\n            \"date\": {\n              \"gte\": \"2018-12-26\", \n              \"lte\": \"2019-03-25\"\n            }\n          },\n          {\"symbol\": \"bil\"},\n          {\"term\": {\"symbol\": \"flot\"}},\n          {\"term\": {\"symbol\": \"flrn\"}},\n          {\"term\": {\"symbol\": \"ftsm\"}},\n          {\"term\": {\"symbol\": \"jpst\"}},\n          {\"term\": {\"symbol\": \"near\"}},\n          {\"term\": {\"symbol\": \"ulst\"}},\n          {\"term\": {\"symbol\": \"vrig\"}}\n        ]\n      },\n      \"minimum_should_match\": 1\n    },\n    \"aggs\": {\n      \"weekly_momentum\": {\n        \"date_histogram\": {\n          \"field\": \"date\",\n          \"interval\": \"1w\",\n          \"format\": \"yyyy-MM-dd\",\n          \"min_doc_count\": 1\n        },\n        \"agg\": {\n          \"cv\": {\n            \"scripted_metric\": {\n              \"init_script\": \"state.total=\\[\"]\\\",\n              \"map_script\": \"state.total.add(doc.change.value*doc.volume.value)\\\",\n              \"combine_script\": \"double total=0,total_count=0;for(tin state.total){total+=t;total_count+=1}return total/total_count\\\",\n              \"reduce_script\": \"return states[0]\\\\\"}\\\"}\"
```

POST cf_etf_Allocation--30% to 50% Equity ETFs

http://localhost:9200/cf_etf/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {"match": {"morningstar_category": "Allocation--30% to 50% Equity"}},
  "aggs": {
    "DEM ETFs": {
      "terms": {"field": "symbol"}
    }
  }
}
```

Example Request

cf_etf_Allocation--30% to 50% Equity ETFs

```
curl --location --request POST "http://localhost:9200/cf_etf/_search" --header "Content-Type: application/json" --data '${
  "size": 0,
  "query": {"match": {"morningstar_category": "Allocation--30% to 50% Equity"}},
  "aggs": {
    "DEM ETFs": {
      "terms": {"field": "symbol"}
    }
  }
}'
```

POST cf_etf_hist_pricce_Allocation--30% to 50% Equity_changes_daily

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query": {
    "bool": {
      "must": {"range": {"date": {"gte": "2018-12-26", "lte": "2019-03-25"}}},
      "should": [
        {"term": {"symbol": "aok"}}
      ]
    }
  }
}
```

```

        {"term": {"symbol": "aom"}},
        {"term": {"symbol": "dwin"}},
        {"term": {"symbol": "iyld"}},
        {"term": {"symbol": "pcef"}},
        {"term": {"symbol": "psmc"}},
        {"term": {"symbol": "psmm"}}
    ],
    "minimum_should_match":1
}
},
"aggs" : {
  "daily_momentum" : {
    "date_histogram" : {
      "field" : "date",
      "interval" : "1d",
      "format" : "yyyy-MM-dd",
      "min_doc_count": 1
    },
    "aggs": {
      "cv" : {
        "scripted_metric":{
          "init_script": "state.totals=[]",
          "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
          "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
          "reduce_script": "return states[0]"
        }
      }
    }
  }
}
}
}

```

Example Request

cf_etf_hist_prirce_Allocation--30% to 50% Equity_changes_daily

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data '{  \"size\": 0,  \"query\":{  \"bool\":{  \"must\": {\"range\": {\"date\":{\"gte\":\"2018-12-26\", \"lte\":\"2019-03-25\"}}},  \"should\": [ {\"term\": {\"symbol\":\"aok\"}}, {\"term\": {\"symbol\":\"aom\"}}, {\"term\": {\"symbol\":\"dwin\"}}, {\"term\": {\"symbol\":\"iyld\"}}, {\"term\": {\"symbol\":\"pcef\"}}, {\"term\": {\"symbol\":\"psmc\"}}, {\"term\": {\"symbol\":\"psmm\"}} ],  \"minimum_should_match\":1 } },  \"aggs\": {  \"daily_momentum\" : {  \"date_histogram\" : {  \"field\" : \"date\",  \"interval\" : \"1d\",  \"format\" : \"yyyy-MM-dd\",  \"min_doc_count\": 1 },  \"aggs\": {  \"cv\" : {  \"scripted_metric\":{  \"init_script\": \"state.totals=[]\",  \"map_script\": \"state.totals.add(doc.change.value*doc.volume.value)\",  \"combine_script\": \"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count\",  \"reduce_script\": \"return states[0]\"}}}}}}'}
```

POST cf_etf_hist_price_Allocation--30% to 50% Equity_changes_weekly

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```

{
  "size": 0,
  "query": {
    "bool": {
      "must": { "range": { "date": { "gte": "2018-12-26", "lte": "2019-03-25" } } },
      "should": [
        { "term": { "symbol": "aok" } },
        { "term": { "symbol": "aom" } },
        { "term": { "symbol": "dwin" } },
        { "term": { "symbol": "iyld" } },
        { "term": { "symbol": "pcef" } },
        { "term": { "symbol": "psmc" } },
        { "term": { "symbol": "psmm" } }
      ],
      "minimum_should_match": 1
    }
  },
  "aggs" : {
    "weekly_momentum" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1w",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "cv" : {
          "scripted_metric": {
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add(doc.change.value*doc.volume.value)",
            "combine_script": "double total=0, total_count=0; for (t
in state.totals) {total += t; total_count += 1} return total/total_count",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}

```

Example Request

cf_etf_hist_prirce_Allocation--30% to 50% Equity_changes_weekly

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data $'{
  \"size\": 0, \"query\":{ \"bool\":{ \"must\": {\"range\": {\"date\":{\"gte\": \"2018-12-26\", \"lte\": \"2019-03-25\"}}}}, \"should\": [ {\"term\": {\"symbol\": \"aok\"}}, {\"term\": {\"symbol\": \"aom\"}}, {\"term\": {\"symbol\": \"dwin\"}}, {\"term\": {\"symbol\": \"iyld\"}}, {\"term\": {\"symbol\": \"pcef\"}}, {\"term\": {\"symbol\": \"psmc\"}}, {\"term\": {\"symbol\": \"psmm\"}} ], \"minimum_should_match\":1 } }, \"aggs\": { \"weekly_momentum\" : { \"date_histogram\" : { \"field\" : \"date\", \"interval\" : \"1w\", \"format\" : \"yyyy-MM-dd\", \"min_doc_count\": 1 }, \"aggs\": { \"cv\" : { \"scripted_metric\": { \"init_script\": \"state.totals=[]\", \"map_script\": \"state.totals.add(doc.change.value*doc.volume.value)\", \"combine_script\": \"double total=0, total_count=0; for (t in state.totals) {total += t; total_count += 1} return total/total_count\", \"reduce_script\": \"return states[0]\"}}}} } } }'
```

POST cf_etf_hist_prirce_Bollinger_band_dem

http://localhost:9200/cf_etf_hist_price/_search

HEADERS

Content-Type

application/json

BODY

```
{
  "size": 0,
  "query":{
    "bool":{
      "must": [
        { "range":{ "date":{ "gte": "2018-12-26", "lte": "2019-03-25" } } },
        { "term": { "symbol": "rfem" } }
      ]
    }
  },
  "aggs" : {
    "Bollinger_band" : {
      "date_histogram" : {
        "field" : "date",
        "interval" : "1d",
        "format" : "yyyy-MM-dd",
        "min_doc_count": 1
      },
      "aggs": {
        "tp" : {
          "scripted_metric":{
            "init_script": "state.totals=[]",
            "map_script":
"state.totals.add((doc.high.value+doc.low.value+doc.close.value)/3)",
            "combine_script": "double total=0; for (t in state.totals) {total
+= t} return total",
            "reduce_script": "return states[0]"
          }
        }
      }
    }
  }
}
```

```

    },
    "20_trading_days_moving_avg": {
        "moving_avg" : {"model": "simple", "window":20,
            "buckets_path":"tp.value"}
    },
    "20_trading_days_stdDev": {
        "moving_fn": {"script":"MovingFunctions.stdDev(values,
MovingFunctions.unweightedAvg(values))", "window":20, "buckets_path":"tp.value"}
    },
    "BBU": {
        "bucket_script": {
            "buckets_path": {
                "SMA": "20_trading_days_moving_avg",
                "StdDev": "20_trading_days_stdDev"
            },
            "script": "params.SMA + 2 * params.StdDev"
        }
    },
    "BBL": {
        "bucket_script": {
            "buckets_path": {
                "SMA": "20_trading_days_moving_avg",
                "StdDev": "20_trading_days_stdDev"
            },
            "script": "params.SMA - 2 * params.StdDev"
        }
    }
}

```

Example Request

cf_etf_hist_price_Bollinger_band_dem

```
curl --location --request POST "http://localhost:9200/cf_etf_hist_price/_search" --header "Content-Type: application/json" --data '{
  "size": 0,
  "query": {
    "bool": {
      "must": [
        {
          "range": {
            "date": {
              "gte": "2018-12-26",
              "lte": "2019-03-25"
            }
          }
        }
      ],
      "aggs": {
        "Bollinger_band": {
          "date_histogram": {
            "field": "date",
            "interval": "1d",
            "format": "yyyy-MM-dd",
            "min_doc_count": 1
          },
          "aggs": {
            "tp": {
              "scripted_metric": {
                "init_script": "state.totals=[]",
                "map_script": "state.totals.add((doc.high.value+doc.low.value+doc.close.value)/3)",
                "combine_script": "double total=0; for (t in state.totals) {total += t} return total",
                "reduce_script": "return states[0]"
              },
              "20_trading_days_moving_avg": {
                "moving_avg": {
                  "model": "simple",
                  "window": 20,
                  "buckets_path": "tp.value"
                },
                "20_trading_days_stdDev": {
                  "moving_fn": {
                    "script": "MovingFunctions.stdDev(values, MovingFunctions.unweightedAvg(values))",
                    "window": 20,
                    "buckets_path": "tp.value"
                  },
                  "BBU": {
                    "bucket_script": {
                      "buckets_path": {
                        "SMA": "20_trading_days_moving_avg",
                        "StdDev": "20_trading_days_stdDev"
                      },
                      "script": "params.SMA + 2 * params.StdDev"
                    },
                    "BBL": {
                      "bucket_script": {
                        "buckets_path": {
                          "SMA": "20_trading_days_moving_avg",
                          "StdDev": "20_trading_days_stdDev"
                        },
                      "script": "params.SMA - 2 * params.StdDev"
                    }
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```

CHAPTER10