

# **SMOKE TEST DOCUMENT**

**ELK Smoke Test Cases** 

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### **Document Information**

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#### 1 INSPECT STATUS OF THE CLUSTER

curl http://<container-ip>:9200/\_cat/health

```
[[bluedata@bluedata-2541 ~]$ curl http://172.18.0.8:9200/_cat/health
1553251084 10:38:04 sds-demo-cluster green 3 3 10 5 0 0 0 0 - 100.0%
```

curl -XGET '<container-ip>:9200/\_cluster/health? pretty'

```
[[bluedata@bluedata-2541 ~]$ curl -XGET '172.18.0.8:9200/_cluster/health?pretty'
  "cluster_name" "3s"sds-demo-cluster", container-ip:9200/_cluster/health?pretty
  "status" : "green",
  "timed_out" : false,
  "number_of_nodes" : 3,
  "number_of_data_nodes" : 3,
  "active_primary_shards" : 5,
  "active_shards" : 10,
  "relocating_shards": 0,
  "initializing_shards" : 0,
  "unassigned_shards" : 0.
  "delayed_unassigned_shards" : 0,
  "number_of_pending_tasks" : 0,
  "number_of_in_flight_fetch" : 0,
  "task_max_waiting_in_queue_millis" : 0,
  "active_shards_percent_as_number" : 100.0
```

**Inspect Cluster Stats:** 

curl http://<container-ip>:9200/\_cluster/stats

[bluedata@bluedata-2541 ~]\$ curl http://172.18.0.8:9200/\_cluster/stats {"\_nodes":{"total":3, "successful":3, "failed":0}, "cluster\_name":"sds-demo-cluster", "cluster\_uuid":"8D-ORitLS2S25TxP2rpU-Q", "timestamp":1553251342487, "status":"green", "indices":{"count":1, "shards":{"total":10, "primaries":5, "replication":1.0, "index":{"shards":{"min":10, "max":10, "avg":10.0}, "primaries":{"min":5, "max":5, "avg":5.0}, "replication":{"min":1.0, "max":1.0, "avg":1.0}}}, "query\_cache":{"memory\_size\_in\_bytes":0, "total\_count":0, "hit\_count":0, "miss\_count":0, "cache\_size":0, "cache\_count":0, "evictions":0}, "completion":{"size\_in\_bytes":0}, "segments":{"count":2, "memory\_in\_bytes":2374, "terms\_memory\_in\_bytes":1478, "stored\_fields\_memory\_in\_bytes":136, "index\_writer\_memory\_in\_bytes":0, "norms\_memory\_in\_bytes":128, "points\_memory\_in\_bytes":8, "doc\_values\_memory\_in\_bytes":136, "index\_writer\_memory\_in\_bytes":0, "version\_map\_memory\_in\_bytes":0, "fixed\_bit\_set\_memory\_in\_bytes":0, "max\_unsafe\_auto\_id\_timestamp":1553126694700, "file\_sizes":{}}}, "nodes":{"count":{"total":3, "data":3, "coordinating\_only":0, "master":3, "ingest":3}, "versions":["encet\_y\_name":CentOS\_tinux\_7 (Core)", "count":3}], "mem":{"total\_in\_bytes":202164760576, "ree\_in\_bytes":95627595776, "used\_in\_bytes":106537164800, "free\_percent":47, "used\_percent":53}}, "process":{"cpu":{"percent":0}, "open\_file\_descriptors":{"min":333, "max":336, "avg":334}}, "jvm":{"max\_uptime\_in\_millis":139730032, "versions":[{"version":"1, 8,0,131", "wm\_name":"Java HotSpot(TM) 64-Bit Server VM", "vm\_version":"25.131-b11", "vm\_vendor":"Oracle Corporation", "count":3}], "mem":{"hotal\_in\_bytes":206606928, "heap\_max\_in\_bytes":3113877504}, "threads":194}, "fs":{"total\_in\_bytes":9660530688}, "free\_in\_bytes":91653144576, "available\_in\_bytes":91653144576}, "plugins":[], "network\_types":{"transport\_types":{"security4":3}}}}[bluedata@bluedata-2541 ~]\$



# 2 LOADING SAMPLE DATA AND VISUALIZING THE DATA IN KIBANA

Here we will load the sample dataset and visualize the data in Kibana UI Loading the sample account dataset

Go to the Elasticsearch master node

```
[root@yav-344 ~] # ssh -i KeyPairs/4.pem bluedata@10.39.250.35
Warning: Permanently added '10.39.250.35' (ECDSA) to the list of known hosts.
Last login: Wed Jul 3 22:22:24 2019
[bluedata@bluedata-8475 ~]$
```

Execute the following command to download the sample account dataset

curl -O https://download.elastic.co/demos/kibana/gettingstarted/7.x/accounts.zip

Execute the following command to unzip the sample account dataset unzip accounts.zip

```
[bluedata@bluedata-8475 ~]$ unzip accounts.zip
Archive: accounts.zip
inflating: accounts.json
[bluedata@bluedata-8475 ~]$ ls
accounts.json accounts.zip vagent.bin
[bluedata@bluedata-8475 ~]$ _
```

Execute the following command to load the sample data into Elasticsearch data host

```
curl -H 'Content-Type: application/x-ndjson' -XPOST '<IP_Address>:9200/bank/account/_bulk?pretty' --data-binary @accounts.json
```

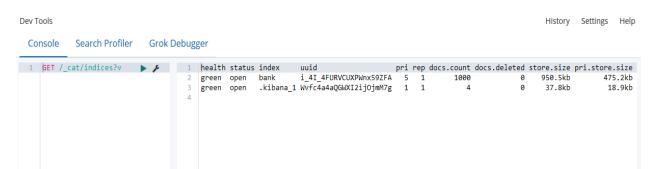
```
[bluedata@bluedata-8475 ~]$
[bluedata@bluedata-8475 ~]$ curl -H 'Content-Type: application/x-ndjson' -XPOST '10.39.250.2:9200/bank/account/_bulk?pretty' --data-binary @accounts.json
```

It will take some time to load the sample account data into Elasticsearch data host. You will see the result as given below

```
"index" : {
       " index" : "bank",
         _type" : "account",
          id": "990",
        " version" : 1,
        "result" : "created",
        " shards" : {
          "total" : 2,
          "successful" : 2,
          "failed" : 0
        "_seq_no" : 210,
        "_primary_term" : 1,
        "status" : 201
     "index" : {
        " index" : "bank",
        __type" : "account",
"_id" : "995",
         version": 1,
        "result" : "created",
        " shards" : {
          "total" : 2,
          "successful" : 2,
          "failed" : 0
        "_seq_no" : 196,
       "_primary_term" : 1,
       "status" : 201
[bluedata@bluedata-8475 ~]$
```

Go to the Kibana UI then click on Dev Tools section, and execute the following command to verify if bank index is created from the sample account dataset

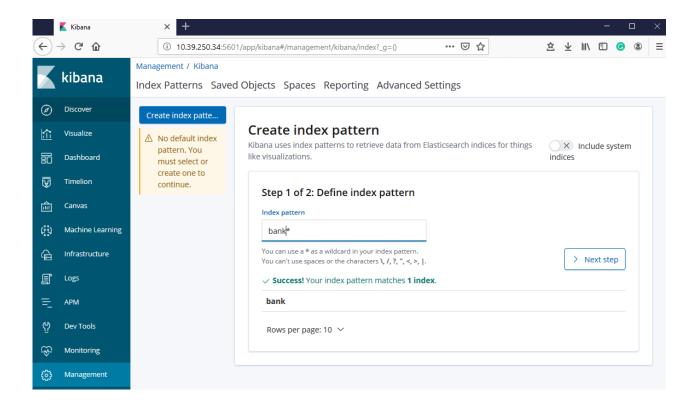
#### GET /\_cat/indices?v



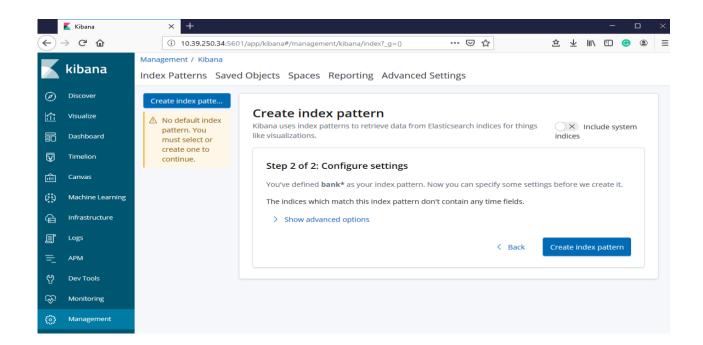


### 2.1 Create Index Patterns for sample account data

Go to the Management section and then click on Index Patterns on Kibana.

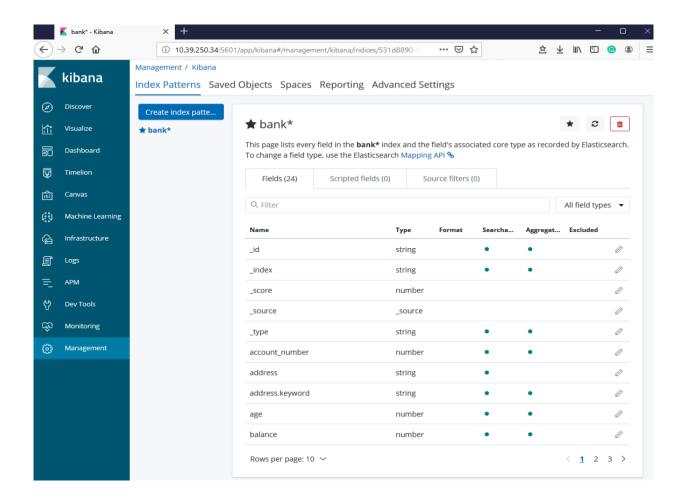


Define index patterns then click on Next step.





Click on Create Index Patterns.

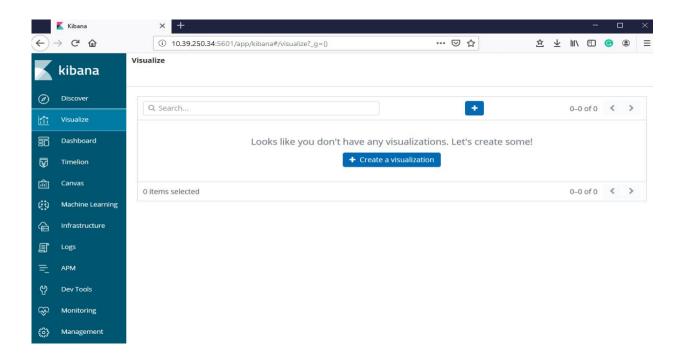


New index pattern is created successfully.

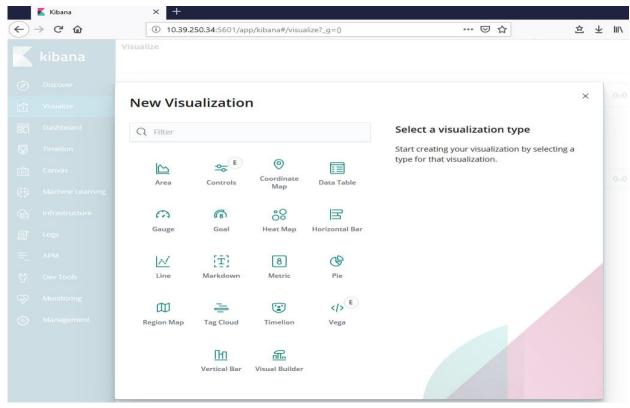


### 2.2 Create visualization type for sample account data

Click on Visualize section on Kibana UI.



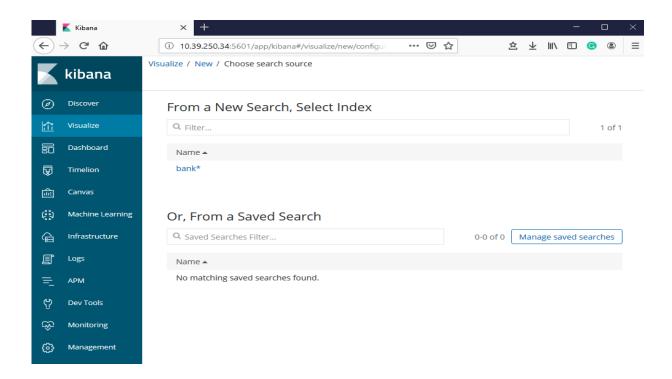
Click on + sign to create new visualization type for sample account data



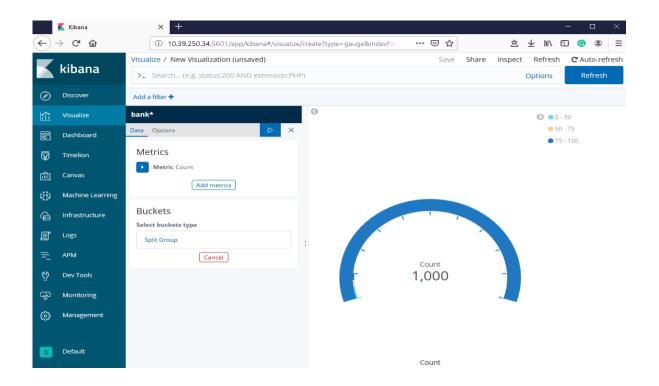
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Click on Gauge to create gauge visualization for sample account data.



Select bank\* to create gauge visualization for sample account data

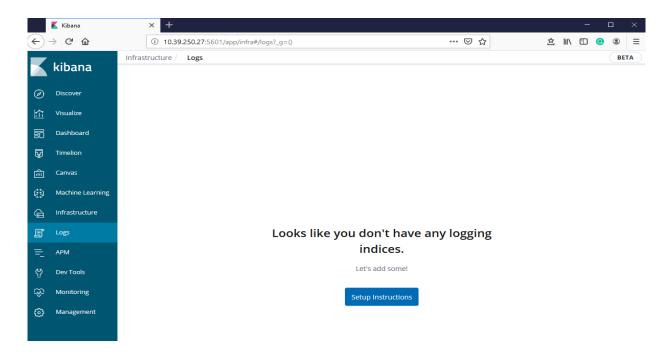


Gauge visualization is created for sample account data successfully.

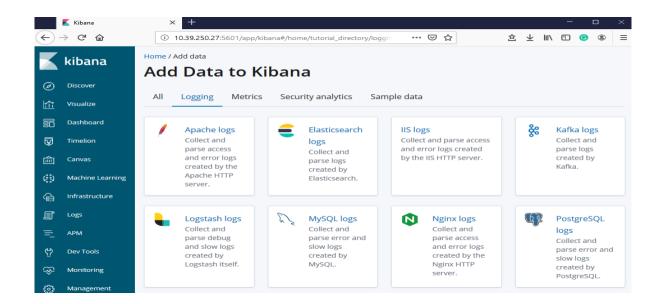


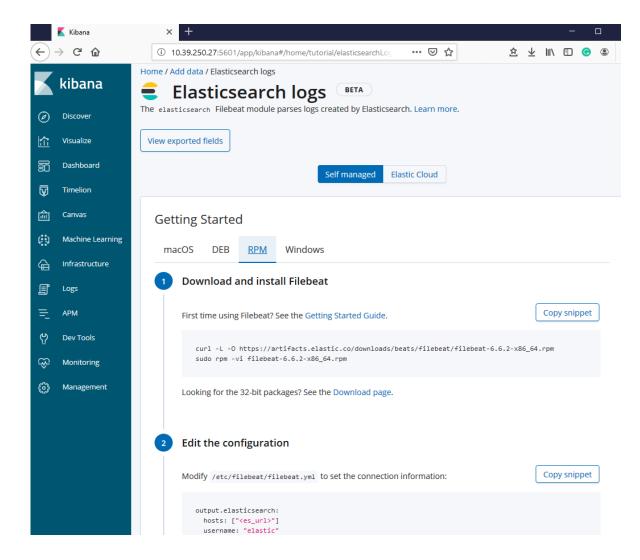
### 3 COLLECTING ELASTICSEARCH LOGS USING FILEBEAT

We will use Kibana UI to get information about how to install Filebeat for collecting Elasticsearch logs. Click on the Logs section then click on Setup Instruction



Click on Elasticsearch logs box. Here you will see the instruction for installing Filebeat.





Here you can see the installation and setup process of Filebeat for Elasticsearch logs

### 3.1 Installing and setting up Filebeat

Go to the Elasticsearch master node for installing Filebeat.

```
[root@yav-344 ~]# ssh -i KeyPairs/4.pem bluedata@10.39.250.30 Warning: Permanently added '10.39.250.30' (ECDSA) to the list of known hosts.

Last login: Tue Jul 2 21:08:33 2019
[bluedata@bluedata-7226 ~]$ ls

vagent.bin
[bluedata@bluedata-7226 ~]$
```

Execute the following command to download the rpm for Filebeat

sudo curl -L -O https://artifacts.elastic.co/downloads/beats/filebeat-6.6.2-x86\_64.rpm



Execute the following command to install Filebeat

#### sudo rpm -vi filebeat-6.6.2-x86\_64.rpm

```
[bluedata@bluedata-7226 ~]$ sudo rpm -vi filebeat-6.6.2-x86_64.rpm warning: filebeat-6.6.2-x86_64.rpm: Header V4 RSA/SHA512 Signature, key ID d88e42b4: NOKEY Preparing packages... filebeat-6.6.2-1.x86_64 [bluedata@bluedata-7226 ~]$ ls filebeat-6.6.2-x86_64.rpm vagent.bin [bluedata@bluedata-7226 ~]$
```

Modify /etc/filebeat/filebeat.yml to set the connection information:

#### sudo vi /etc/filebeat/filebeat.yml

```
[bluedata@bluedata-7226 ~]$
[bluedata@bluedata-7226 ~]$ sudo vi /etc/filebeat/filebeat.yml
[bluedata@bluedata-7226 ~]$
```

Enter IP address for Kibana and Elasticsearch hosts in filebeat.yml file



Execute the following command to enable Elasticsearch module

#### sudo filebeat modules enable elasticsearch

```
[bluedata@bluedata-7226 ~]$
[bluedata@bluedata-7226 ~]$ sudo filebeat modules enable elasticsearch
```

Execute the following command to setup Filebeat

#### sudo filebeat setup

```
[bluedata@bluedata-7226 ~]$ sudo filebeat setup
Loaded index template
Loading dashboards (Kibana must be running and reachable)
Loaded dashboards
Loaded machine learning job configurations
```

Execute the following command to start Filebeat

#### sudo service filebeat start

```
[bluedata@bluedata-7226 ~]$ sudo service filebeat start
Starting filebeat (via systemctl): [ OK ]
```

Execute the following command to check the status for Filebeat

#### sudo service filebeat status

```
[bluedata@bluedata-7226 ~]$ sudo service filebeat status

• filebeat.service - Filebeat sends log files to Logstash or directly to Elasticsearch.

Loaded: loaded (/usr/lib/systemd/system/filebeat.service; disabled; vendor preset: disabled)

Active: active (running) since Wed 2019-07-03 00:11:45 PDT; 6s ago

Docs: https://www.elastic.co/products/beats/filebeat

Main PID: 6454 (filebeat)

CGroup: /system.slice/docker-9e820cb4973efa20401fe07af732867bc2bdc72ae7d145686d759dda7f985477.scope/system.slice/filebeat.service

L6454 /usr/share/filebeat/bin/filebeat -c /etc/filebeat/filebeat.yml -path.home /usr/share/filebeat -path.config /etc/...

Jul 03 00:11:45 bluedata-7226.bdlocal systemd[1]: Started Filebeat sends log files to Logstash or directly to Elasticsearch...

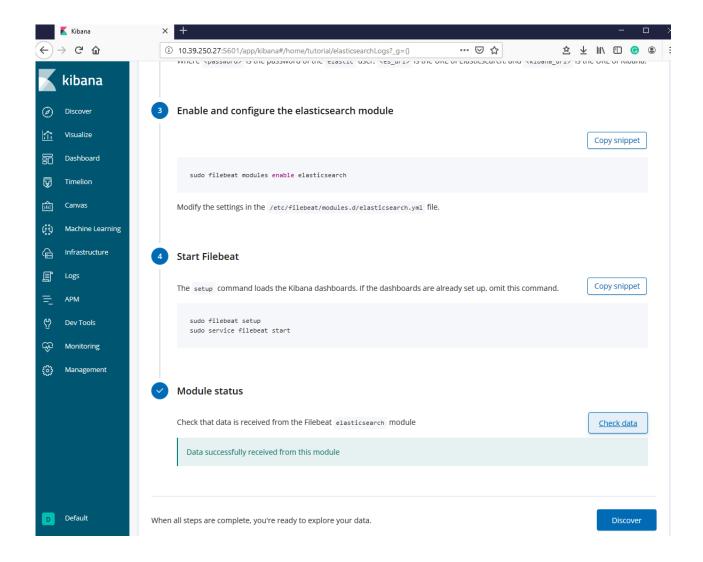
Jul 03 00:11:45 bluedata-7226.bdlocal systemd[1]: Starting Filebeat sends log files to Logstash or directly to Elasticsearch...

[bluedata@bluedata-7226 ~]$
```

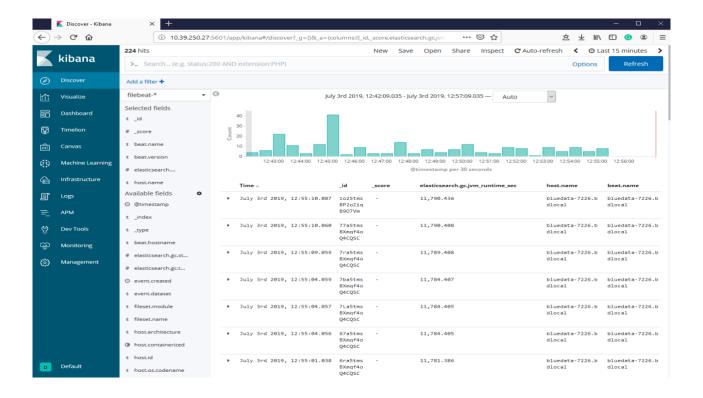


### 3.2 Collecting Elasticsearch logs in Kibana UI

Go to the Elasticsearch logs section in Kibana UI and click on Check data button.

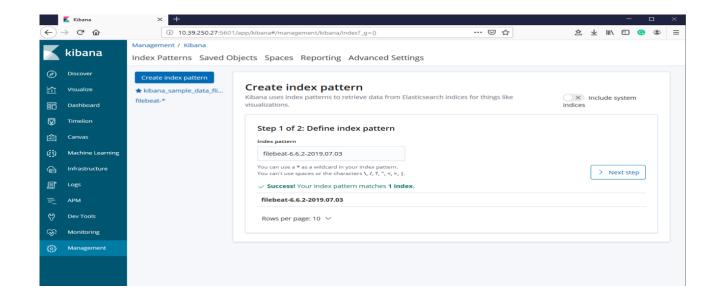


Click on Discover to explore your Elasticsearch log data



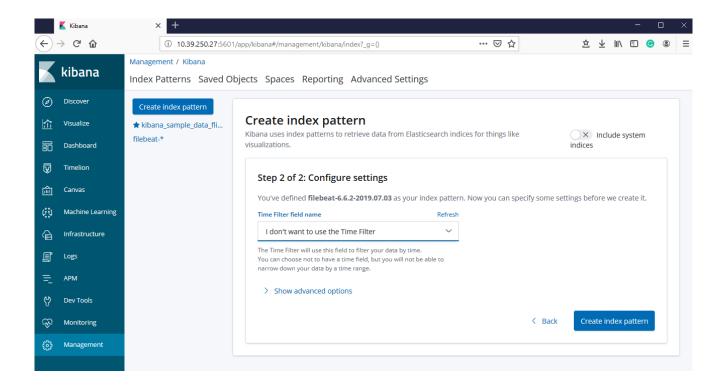
### 3.3 Create Index patterns name for Elasticsearch logs data

Go to the Management section and then click on Index Patterns.

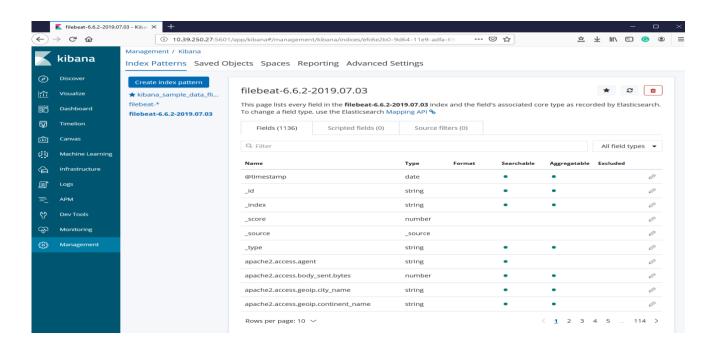




Define index pattern then click on Next step.



Click on Create index pattern to define time filter field name for your index pattern

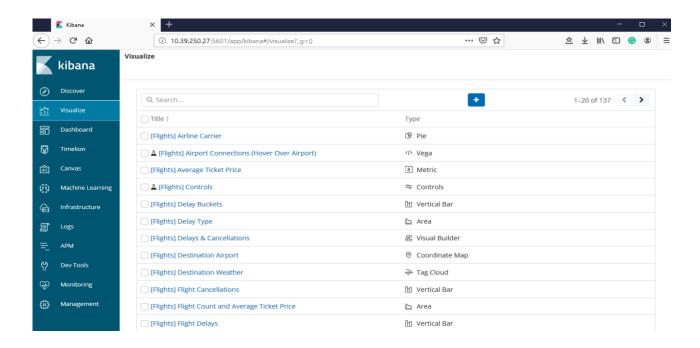


New index pattern is created successfully.

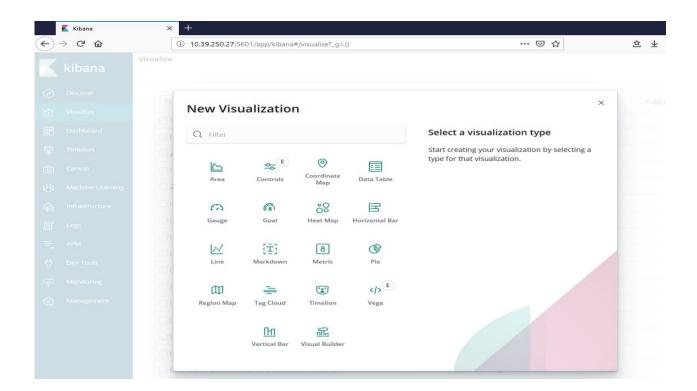


### 3.4 Create visualization type for Elasticsearch logs data

Click on Visualize section on Kibana UI.

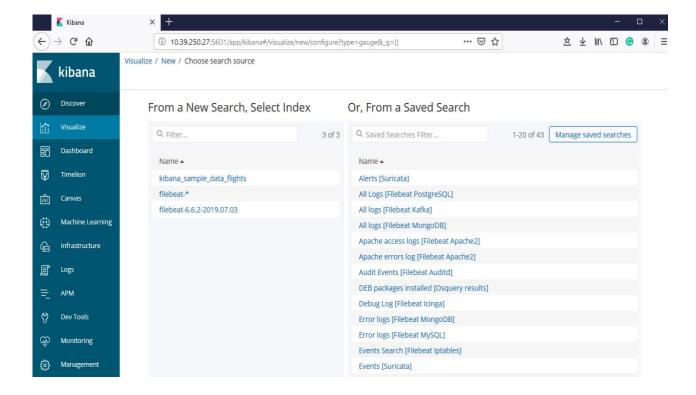


Click on + sign to create new visualization type for Elasticsearch logs data

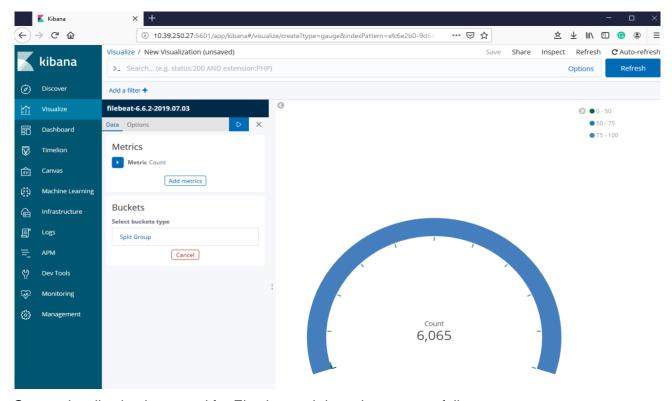




Click on Gauge to create gauge visualization for Elasticsearch log data.



Select filebeat.6.6.2.2019.07.03 to create gauge visualization for Elasticsearch logs data



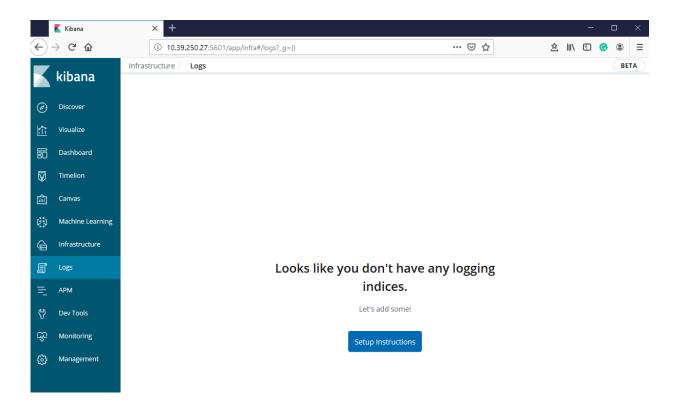
Gauge visualization is created for Elasticsearch logs data successfully.



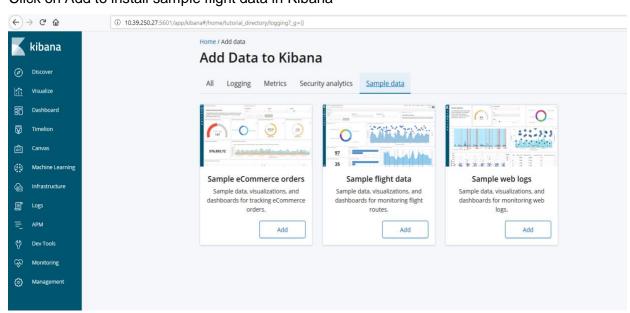
#### 4 TESTING ELK STACK WITH SAMPLE FLIGHT DATASET

## 4.1 Add sample flight data to Kibana

We will use Kibana UI to add sample flights dataset and test the ELK stack

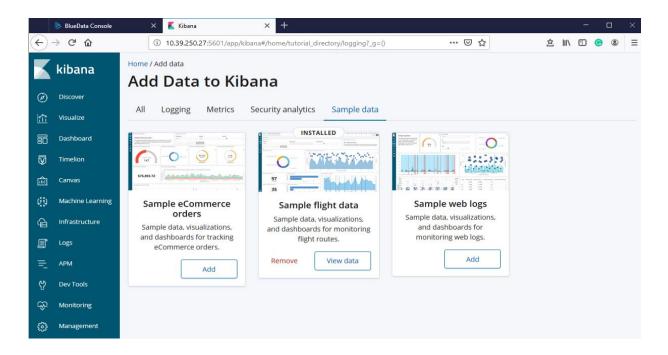


Click on Add to install sample flight data in Kibana



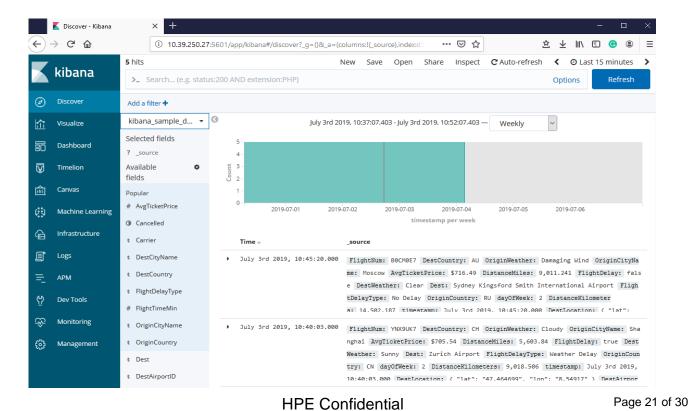


Click on View data to check the data in sample flight data and you can also remove sample flight data anytime from Kibana



### 4.2 Discover the sample flight dataset

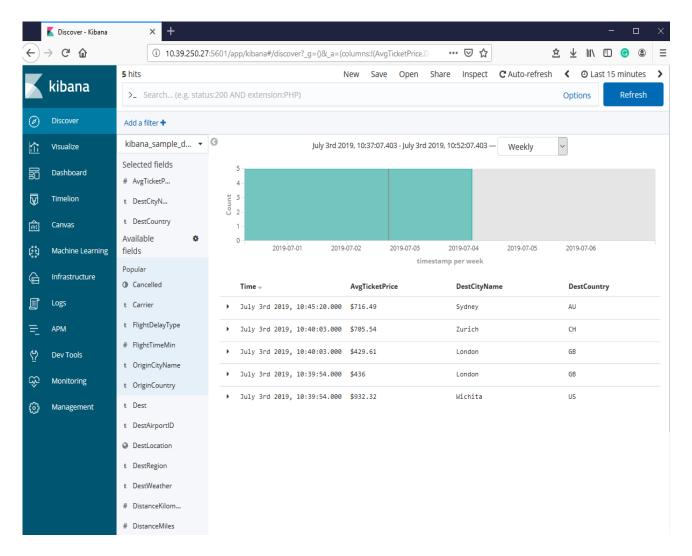
Click on Discover section in Kibana UI





Here you can see selected fields and available fields for kibana\_sample\_data\_flights. By adding available fields into selected fields, we can get filtered results.

Let's select some of the field, which is available.

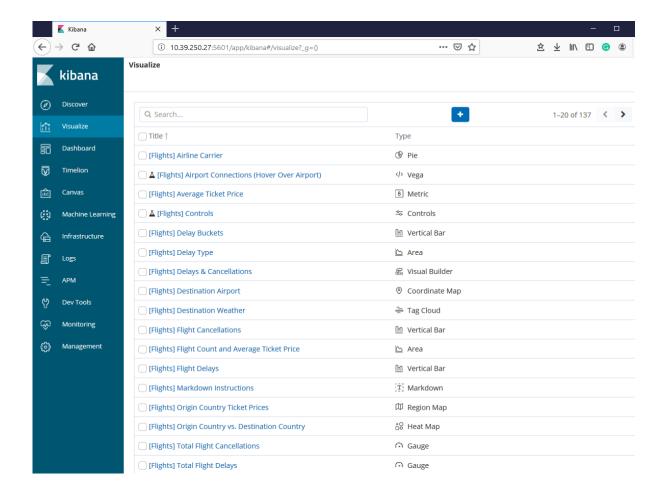


Here selected fields are avgticketprice, destcityname and destcountry. You can see the filtered output based on the fields you selected.



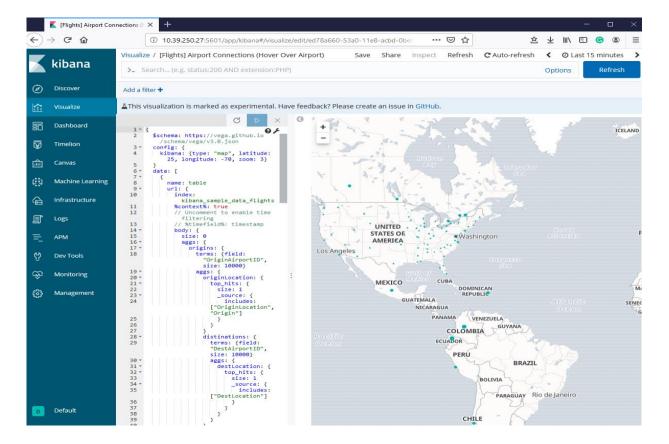
### 4.3 Visualize the sample flight dataset

Click on Visualize to check available visualization type for sample flight dataset





Here you can see the visualization type available for sample flight dataset. Select any visualization type to explore the sample flights dataset.

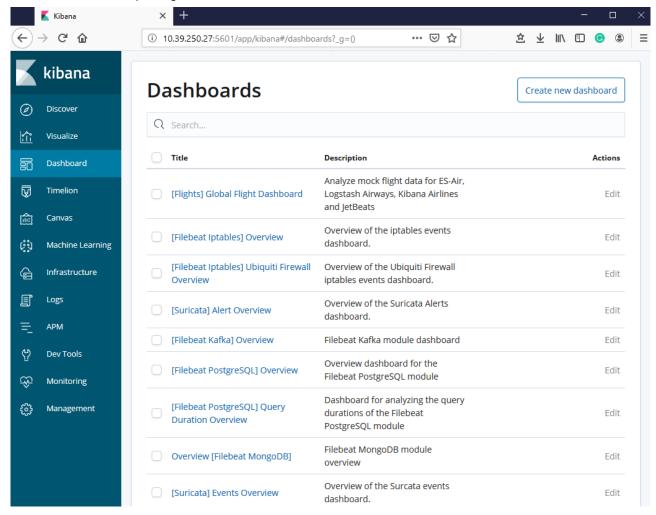


Here we have selected the [Flights] Airport Connections (Hover Over Airport) visualization, which has Vega visualization type. When you will do hover over airport you will see how many connections that airport has.



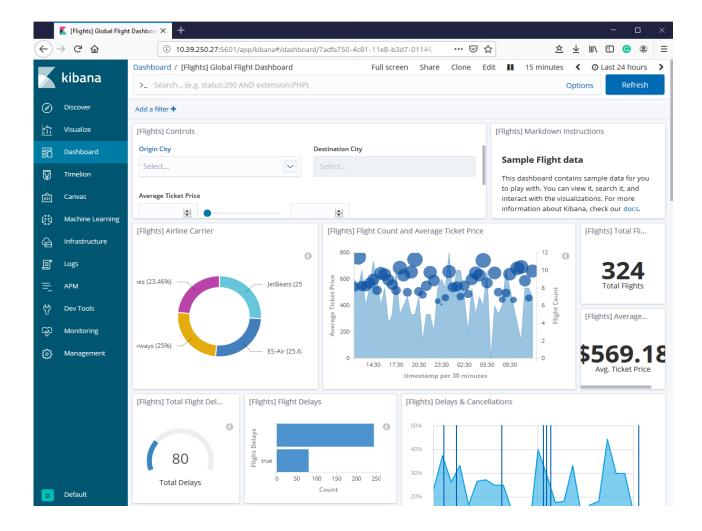
### 4.4 Test Dashboard for sample flight dataset

Click on Dashboard section to check dashboard for sample flight dataset. Here we have Global Flight Dashboard for sample flight dataset.





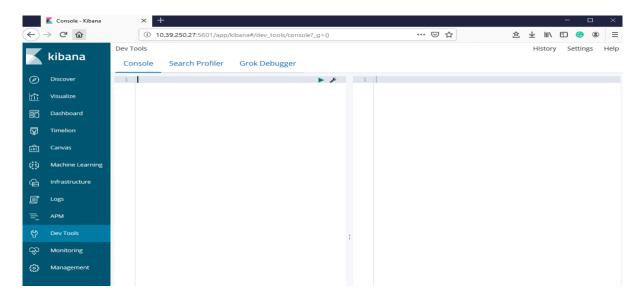
Click on Global Flight Dashboard to explore dashboard for sample flight dataset.





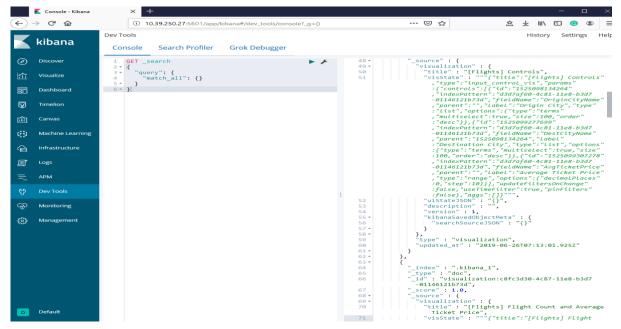
#### 4.5 Test REST API from Dev Tools

Click on Dev Tools in Kibana UI



Note: Here you can run your REST API commands
Use following REST command to check whether Sample flight data added to Kibana

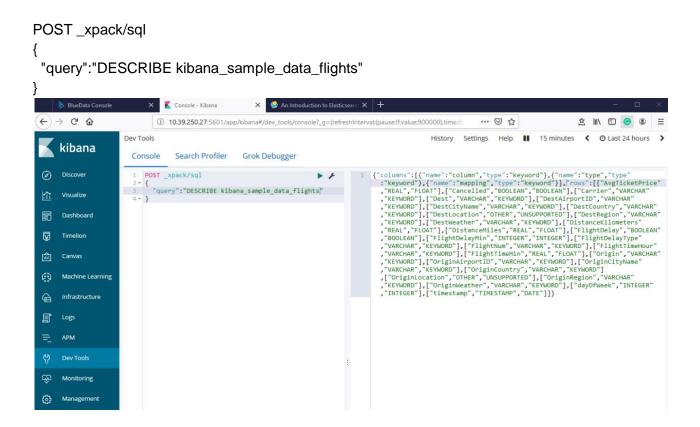
```
GET _search
{
   "query": {
    "match_all": {}
   }
}
```



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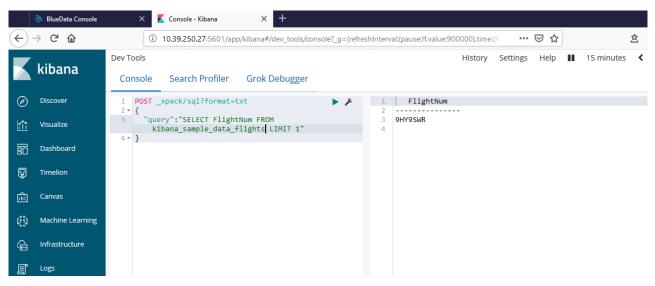


Use the following command to describe what is inside the sample flight dataset



Use following command to run SELECT query in sample flight dataset

```
POST _xpack/sql?format=txt {
    "query":"SELECT FlightNum FROM kibana_sample_data_flights LIMIT 1"
}
```



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### 4.6 Testing SQL CLI for ELK

Go inside the container where Elasticsearch is installed

#### ssh -i <your pem keypair> bluedata@<ip address>

```
[root@yav-344 ~]# [root@yav-344 ~]# ssh -i KeyPairs/4.pem bluedata@10.39.250.30 Warning: Permanently added '10.39.250.30' (ECDSA) to the list of known hosts. Last login: Sun Jun 30 22:15:07 2019 [bluedata@bluedata-7226 ~]$ [bluedata@bluedata-7226 ~]$
```

Go to the directory (/usr/share/elasticsearch) where Elasticsearch is installed then use Is command. We will be using elasticserach-sql-cli

```
📂 bluedata@bluedata-7226:/usr/share/elasticsearch
[bluedata@bluedata-7226 elasticsearch]$
[bluedata@bluedata-7226 elasticsearch]$ ls bin/
elasticsearch
                          elasticsearch-keystore
                                                              elasticsearch-sql-cli
                                                                                               x-pack-env
                                                              elasticsearch-sql-cli-6.6.2.jar x-pack-env.bat
elasticsearch-certgen
                          elasticsearch-migrate
elasticsearch-certgen.bat elasticsearch-migrate.bat
                                                              elasticsearch-sql-cli.bat
                                                                                               x-pack-security-env
elasticsearch-certutil
                          elasticsearch-plugin
                                                              elasticsearch-syskeygen
                                                                                               x-pack-security-env.bat
elasticsearch-certutil.bat elasticsearch-saml-metadata
                                                              elasticsearch-syskeygen.bat
                                                                                               x-pack-watcher-env
elasticsearch-cli
                           elasticsearch-saml-metadata.bat
                                                              elasticsearch-translog
                                                                                               x-pack-watcher-env.bat
elasticsearch-croneval
                          elasticsearch-setup-passwords
                                                              elasticsearch-users
elasticsearch-croneval.bat elasticsearch-setup-passwords.bat elasticsearch-users.bat
lasticsearch-env
                           elasticsearch-shard
[bluedata@bluedata-7226 elasticsearch]$
```

Execute the following command to open SQL CLI, which is installed with Elasticsearch. You can pass the URL of the Elasticsearch instance as a first parameter

#### sudo ./bin/elasticsearch-sql-cli http://<ip-address of elastics search node>:9200

```
[bluedata@bluedata-7226 elasticsearch]$
[bluedata@bluedata-7226 elasticsearch]$ sudo ./bin/elasticsearch-sql-cli http://10.39.250.28:9200
```

After executing above command, you will see the SQL CLI as given below



Execute the following command to check which tables are available

Execute the following command to run simple SELECT query in sample flights data table