

Elasticsearch搜索引擎

1.学习目标



- (1) 分布式搜索和分析引擎
- (2) 全文检索，结构化检索，数据分析
- (3) 对海量数据进行近实时的处理

分布式：ES自动可以将海量数据分散到多台服务器上存储和检索

海量数据的处理：分布式后，可采用大量的服务器存储和检索数据，从而实现海量数据的处理

近实时：在秒级别对数据进行搜索和分析

2. 安装ElasticSearch

(24条消息) Ubuntu 安装elasticsearch集群-CSDN博客

<https://blog.csdn.net/fyhju1/article/details/124668834>

```
# 查看集群状态
http://192.168.126.70:9221/_cat/health?v
```

```
# 查看节点状态
http://192.168.126.70:9221/_cat/nodes?v
```

<https://www.howtoforge.com/how-to-setup-elasticsearch-cluster-with-3-nodes-on-ubuntu/>

```
curl http://10.11.10.62:9200/_cluster/stats?pretty
curl http://10.11.10.62:9200/_nodes/process?pretty
curl http://192.168.126.70:9200/_cluster/health?pretty
```

```
http://192.168.126.70:9200/_cluster/stats?pretty
http://192.168.126.70:9200/_nodes/process?pretty
http://192.168.126.70:9200/_cluster/health?pretty
```

Download Elasticsearch

<https://www.howtoforge.com/how-to-setup-elasticsearch-cluster-with-3-nodes-on-ubuntu/>

<https://blog.csdn.net/fyhju1/article/details/124668834>

<https://www.cnblogs.com/weihengblogs/p/17030511.html>

For linux, the current version 7.4.2, as of now, of Elasticsearch can be downloaded using the following command on your linux systems.

```
mkdir elastic1
cd elastic1/
wget https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-7.4.2-linux-x86_64.tar.gz
```

Install Java

Elasticsearch need Java to be available on the system.

To install OpenJDK 8, use the following commands on your Ubuntu 18.04 Server

```
sudo apt update
sudo apt install openjdk-8-jdk
java -version
```

Install and Configure Elasticsearch

Now, it's time to install Elasticsearch from the archive.

Extract the package we just downloaded in the previous step using the following command.

Install Elasticsearch On Each Node

```
tar -zxvf elasticsearch-7.4.2-linux-x86_64.tar.gz
```

Configure Elasticsearch

Before starting the service, Elasticsearch needs to be configured to work in Cluster mode.

Here we have 3 servers

- es-node-1: 192.168.126.70 (Initial master)
- es-node-2: 192.168.126.71
- es-node-3: 192.168.126.72

Open config/elasticsearch.yml file and add the following in it. (Check for your IPs)

```
vim elasticsearch-7.4.2/config/elasticsearch.yml
```

Add On Master es-node-1 in config/elasticsearch.yml

```
#give your cluster a name.
cluster.name: my-cluster

#give your nodes a name (change node number from node to node).
node.name: "es-node-1"

#define node 1 as master-eligible:
node.master: true

#define nodes 2 and 3 as data nodes:
node.data: true

#enter the private IP and port of your node:
network.host: 10.11.10.62
http.port: 9200

#detail the private IPs of your nodes:
discovery.zen.ping.unicast.hosts: ["10.11.10.62", "10.11.14.248", "10.11.13.158"]

cluster.initial_master_nodes:
- 10.11.10.62

#enable cross-domain access
http.cors.enabled: true
http.cors.allow-origin: "*"
```

Add On es-node-2 in config/elasticsearch.yml (This node does not contain: cluster.initial_master_nodes)

```
#give your cluster a name.  
cluster.name: my-cluster  
  
#give your nodes a name (change node number from node to node).  
node.name: "es-node-2"  
  
#define node 1 as master-eligible:  
node.master: true  
  
#define nodes 2 and 3 as data nodes:  
node.data: true  
  
#enter the private IP and port of your node:  
network.host: 10.11.14.248  
http.port: 9200  
  
#detail the private IPs of your nodes:  
discovery.zen.ping.unicast.hosts: ["10.11.10.62", "10.11.14.248", "10.11.13.158"]
```

Add On es-node-3 in config/elasticsearch.yml (This node does not contain: cluster.initial_master_nodes)

```
#give your cluster a name.  
cluster.name: my-cluster  
  
#give your nodes a name (change node number from node to node).  
node.name: "es-node-3"  
  
#define node 1 as master-eligible:  
node.master: true  
  
#define nodes 2 and 3 as data nodes:  
node.data: true  
  
#enter the private IP and port of your node:  
network.host: 10.11.13.158  
http.port: 9200  
  
#detail the private IPs of your nodes:  
discovery.zen.ping.unicast.hosts: ["10.11.10.62", "10.11.14.248", "10.11.13.158"]
```

Start and Test the Cluster

Start the Cluster

On Each Node (First start Master es-node1)

Use the following command to start Elasticsearch in foreground

```
bin/elasticsearch
```

****Note:****

Elasticsearch uses a **mmapfs** directory by default to store its indices. The default operating system limits on mmap counts is likely to be too low, which may result in the following out of memory exceptions. *

*

```
[1]: max virtual memory areas vm.max_map_count [65530] is too low, increase to at least [262144]
```

On Ubuntu 18.04 we can increase the limits by running the following command as root/sudo:

```
sudo sysctl -w vm.max_map_count=262144
```

Add -d to start to start Elasticsearch in background

```
bin/elasticsearch -d
```

Test the cluster

Open a new terminal from which the cluster is reachable and try the following commands

```
curl http://10.11.10.62:9200/_cluster/stats?pretty
```

```
curl http://10.11.10.62:9200/_nodes/process?pretty
```

```
curl http://10.11.10.62:9200/_cluster/health?pretty
```

View the cluster

```
# 查看集群状态
http://192.168.126.70:9200/_cat/health?v
curl http://192.168.126.70:9200/_cat/health?v
```

```
# 查看节点状态
http://192.168.126.70:9200/_cat/nodes?v
curl http://192.168.126.70:9200/_cat/nodes?v
```

```
student@es03:~/elastic1/elasticsearch-7.4.2/bin$ curl http://192.168.126.70:9200/_cat/nodes?v
ip                heap.percent ram.percent cpu load_1m load_5m load_15m node.role master name
192.168.126.71      8           32      0    0.08  0.26    0.26 dilm      *   es-node-2
192.168.126.72     11           32      0    0.13  0.26    0.26 dilm      -   es-node-3
192.168.126.70     10           33      0    0.12  0.36    0.31 dilm      -   es-node-1
```

Install Elasticsearch-Head Plugin

download plugin

```
wget https://code.load.github.com/mobz/elasticsearch-head/zip/master
unzip master
```

Install Nodejs & npm

```
sudo apt-get install nodejs
sudo apt-get install npm
sudo apt-get install grunt
sudo apt-get install grunt-cli
sudo npm install
```

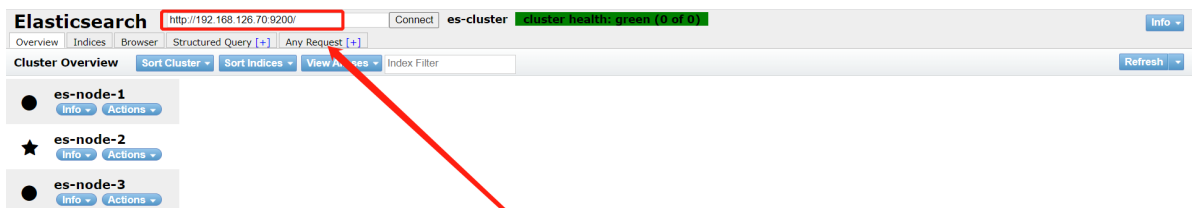
Remember to change the `elasticsearch.yml` configuration file in elasticsearch and add the cross-domain configuration

```
http.cors.enabled: true
http.cors.allow-origin: "*"
```

Start service

```
npm start
```

<http://192.168.126.70:9100>



将elasticsearch cluster集群添加到
header可视化界面

Install Kibana

[Install Kibana with Debian package | Kibana Guide 7.10] | Elastic

<https://www.elastic.co/guide/en/kibana/7.10/deb.html>

https://blog.csdn.net/weixin_40816738/article/details/121393228

(25条消息) kibana-7.15.2 一分钟下载、安装、部署 linux_kibana 下载_gblfy的博客-CSDN博客

```
$ cd /app
$ wget https://artifacts.elastic.co/downloads/kibana/kibana-7.15.2-linux-x86_64.tar.gz
$ tar -zxvf kibana-7.15.2-linux-x86_64.tar.gz
$ cd /app/kibana-7.15.2-linux-x86_64/config
$ vim kibana.yml
server.port: 5601
elasticsearch.hosts: ["http://192.168.126.70:9200", "http://192.168.126.71:9200",
"http://192.168.126.72:9200"]
server.host: "0.0.0.0"
```

Install Logstash

https://blog.51cto.com/u_13773780/5612037

```
$ sudo apt install ruby
$ wget https://artifacts.elastic.co/downloads/logstash/logstash-7.4.2.tar.gz //下载
logstash-7.4.2.tar.gz
$ tar -zxvf logstash-7.4.2.tar.gz
$ /home/student/elastic1/logstash-7.4.2/bin
$ ./logstash -f ../config/log-to-es.conf
```