

ES从入门到精通

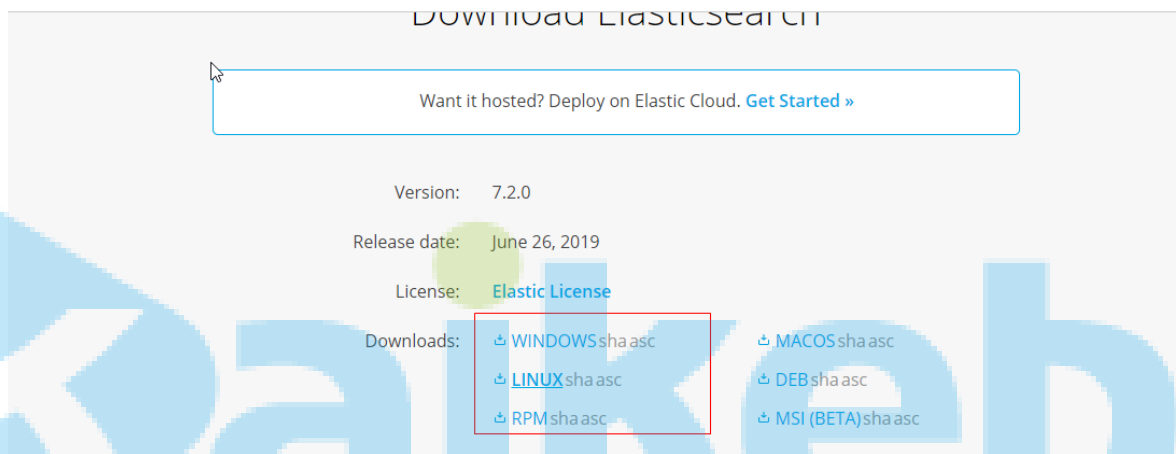
一、ES安装

1、下载ES

下载：（文件比较大，建议手动下载）

<https://www.elastic.co/cn/downloads/elasticsearch>

Downloads



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Version: 7.2.0



Release date: June 26, 2019

License: [Elastic License](#)

Downloads:

- [WINDOWS sha asc](#)
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下载网址：

	jdk-8u65-linux-x64.tar.gz	2015/11/13 16:30	GZ 文件	177,013 KB
	elasticsearch-6.2.4.tar.gz	2019/6/26 16:11	GZ 文件	28,376 KB

2、安装

解压：

```
tar -zxvf elasticsearch-6.2.4.tar.gz
```

注意：把elasticsearch软件必须放入/home/es（es是新建用户）的目录下，并把elasticsearch设置为es用户所属

创建日志、数据存储目录：（留作备用，初次先创建）

```
mkdir -p /data/logs/es
mkdir -p /data/es/{data,work,plugins,scripts}
```

创建用户

```
useradd es -s /bin/bash #es不能在root用户下启动，必须创建新的用户，用来启动es
```

启动：./elasticsearch

```
root@jackhu bin# ./elasticsearch
[2019-06-26T16:14:40,309][WARN ][o.e.b.ElasticsearchUncaughtExceptionHandler] [] uncaught exception in thread [main]
org.elasticsearch.bootstrap.StartupException: java.lang.RuntimeException: can not run elasticsearch as root
    at org.elasticsearch.bootstrap.Elasticsearch.init(Elasticsearch.java:125) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Elasticsearch.execute(Elasticsearch.java:112) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.cli.EnvironmentAwareCommand.execute(EnvironmentAwareCommand.java:86) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.cli.Command.mainWithoutErrorHandling(Command.java:124) ~[elasticsearch-cli-6.2.4.jar:6.2.4]
    at org.elasticsearch.cli.Command.main(Command.java:90) ~[elasticsearch-cli-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Elasticsearch.main(Elasticsearch.java:92) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Elasticsearch.main(Elasticsearch.java:85) ~[elasticsearch-6.2.4.jar:6.2.4]
Caused by: java.lang.RuntimeException: can not run elasticsearch as root
    at org.elasticsearch.bootstrap.Bootstrap.initializeNatives(Bootstrap.java:105) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Bootstrap.setup(Bootstrap.java:172) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Bootstrap.init(Bootstrap.java:323) ~[elasticsearch-6.2.4.jar:6.2.4]
    at org.elasticsearch.bootstrap.Elasticsearch.init(Elasticsearch.java:121) ~[elasticsearch-6.2.4.jar:6.2.4]
```

注意：es不能在root用户下启动，必须创建新的用户，用来启动es

切换用户：su es

再次启动，发现还是报错，原因：当前用户没有执行权限

```
root@jackhu bin# su es
[es@jackhu bin]$ ./elasticsearch
Exception in thread "main" java.nio.file.AccessDeniedException: /home/es/elasticsearch-6.2.4/config/jvm.options
    at sun.nio.fs.UnixException.translateToIOException(UnixException.java:84)
    at sun.nio.fs.UnixException.rethrowAsIOException(UnixException.java:102)
    at sun.nio.fs.UnixException.rethrowAsIOException(UnixException.java:107)
    at sun.nio.fs.UnixFileSystemProvider.newByteChannel(UnixFileSystemProvider.java:214)
    at java.nio.file.Files.newByteChannel(Files.java:361)
    at java.nio.file.Files.newByteChannel(Files.java:407)
    at java.nio.file.spi.FileSystemProvider.newInputStream(FileSystemProvider.java:384)
    at java.nio.file.Files.newInputStream(Files.java:152)
    at org.elasticsearch.tools.launchers.JvmOptionsParser.main(JvmOptionsParser.java:58)
[es@jackhu bin]$ cd ..
```

授权：chown -R es:es elasticsearch-6.2.4

```
root@jackhu es# su es
[es@jackhu ~]$ ll
总用量 28376
drwxr-xr-x. 8 es es 143 4月 13 2018 elasticsearch-6.2.4
-rw-r--r--. 1 root root 29056810 6月 26 16:11 elasticsearch-6.2.4.tar.gz
[es@jackhu ~]$ cd elasticsearch-6.2.4
[es@jackhu elasticsearch-6.2.4]$ ll
总用量 224
drwxr-xr-x. 2 es es 4096 6月 26 16:13 bin
```

授权成功，发现elasticsearch已经在es用户下面了，可以启动了，但是启动成功，浏览器不能访问，因此还需要做如下配置：

配置修改：**

```
#
# Set the bind address to a specific IP (IPv4 or IPv6):
#
network.host: 0.0.0.0
#
# Set a custom port for HTTP:
#
```

再次启动：报如下错误

```
[2019-06-26T16:40:34,368][INFO ][o.e.n.Node ] [4fZjnig] starting ...
[2019-06-26T16:40:35,232][INFO ][o.e.t.TransportService ] [4fZjnig] publish_address {192.168.66.66:9300}, b
[2019-06-26T16:40:35,249][INFO ][o.e.b.BootstrapChecks ] [4fZjnig] bound or publishing to a non-loopback a
ERROR: [3] bootstrap checks failed
[1]: max file descriptors [4096] for elasticsearch process is too low, increase to at least [65536]
[2]: max number of threads [3853] for user [es] is too low, increase to at least [4096]
[3]: max virtual memory areas vm.max_map_count [65530] is too low, increase to at least [262144]
[2019-06-26T16:40:35,273][INFO ][o.e.n.Node ] [4fZjnig] stopping ...
[2019-06-26T16:40:35,300][INFO ][o.e.n.Node ] [4fZjnig] stopped
```

1) max file descriptors [4096] for elasticsearch process is too low, increase to at least [65536]

每个进程最大同时打开文件数太小，可通过下面2个命令查看当前数量

```
ulimit -Hn
ulimit -Sn
```

```
[es@jackhu bin]$ ulimit -Hn
4096
[es@jackhu bin]$ ulimit -Hs
unlimited
[es@jackhu bin]$ ulimit -Sn
1024
```

修改/etc/security/limits.conf文件，增加配置，用户退出后重新登录生效

*	soft	nofile	65536
*	hard	nofile	65536

```
[root@jackhu bin]# ulimit -Hn
65536
[root@jackhu bin]# ulimit -Sn
65536
```

2) max number of threads [3818] for user [es] is too low, increase to at least [4096]

可通过命令查看

```
ulimit -Hu
ulimit -Su
```

```
[root@jackhu bin]# ulimit -Hu
3853
[root@jackhu bin]# ulimit -Su
3853
[root@jackhu bin]#
```

问题同上，最大线程个数太低。修改配置文件/etc/security/limits.conf，增加配置

*`	soft	nproc	4096`
*`	hard	nproc	4096`

```
[root@jackhu bin]# ulimit -Hu
4096
[root@jackhu bin]# ulimit -Su
4096
```

3) 、 max virtual memory areas vm.max_map_count [65530] is too low, increase to at least [262144]

修改/etc/sysctl.conf文件

```
vi /etc/sysctl.conf
sysctl -p #执行命令sysctl -p生效
#增加配置vm.max_map_count=262144
```

```
[root@jackhu bin]# vi /etc/sysctl.conf
# sysctl settings are defined through files in
# /usr/lib/sysctl.d/, /run/sysctl.d/, and /etc/sysctl.d/.
#
# Vendors settings live in /usr/lib/sysctl.d/.
# To override a whole file, create a new file with the same in
# /etc/sysctl.d/ and put new settings there. To override
# only specific settings, add a file with a lexically later
# name in /etc/sysctl.d/ and put new settings there.
#
# For more information, see sysctl.conf(5) and sysctl.d(5).
"/etc/sysctl.conf" 11L, 473C written
[root@jackhu bin]# sysctl -p 执行此命令生效
vm.max_map_count = 262144
[root@jackhu bin]#
```

错误解决完毕：重新启动

← → ↺ ① 不安全 | 192.168.66.66:9200

```
{
  "name" : "4fZjnig",
  "cluster_name" : "elasticsearch",
  "cluster_uuid" : "amdhilZaSm6tgynYGfLGdQ",
  "version" : {
    "number" : "6.2.4",
    "build_hash" : "ccec39f",
    "build_date" : "2018-04-12T20:37:28.497551Z",
    "build_snapshot" : false,
    "lucene_version" : "7.2.1",
    "minimum_wire_compatibility_version" : "5.6.0",
    "minimum_index_compatibility_version" : "5.0.0"
  },
  "tagline" : "You Know, for Search"
}
```

后台启动：

```
./elasticsearch -d
```

3、容器安装

```
#搜索镜像
docker search elasticsearch
#拉取镜像
docker pull elasticsearch:6.2.4
#创建容器
docker create --name elasticsearch --net host -e "discovery.type=single-node" -e
"network.host=192.168.66.66" elasticsearch:6.2.4
#启动
docker start elasticsearch
#查看日志
docker logs elasticsearch
```

访问容器elasticsearch:

```
{
  "name" : "4fZjng",
  "cluster_name" : "elasticsearch",
  "cluster_uuid" : "amdhilZaSm6tgynYGfLGdQ",
  "version" : {
    "number" : "6.2.4",
    "build_hash" : "ccec39f",
    "build_date" : "2018-04-12T20:37:28.497551Z",
    "build_snapshot" : false,
    "lucene_version" : "7.2.1",
    "minimum_wire_compatibility_version" : "5.6.0",
    "minimum_index_compatibility_version" : "5.0.0"
  },
  "tagline" : "You Know, for Search"
}
```

后台

二、head插件安装

1、head插件主要用途

elasticsearch-head是一个用来浏览、与Elastic Search簇进行交互的web前端展示插件。

elasticsearch-head是一个用来监控Elastic Search状态的客户端插件。

elasticsearch主要有以下三个主要操作—— 1) 簇浏览，显示簇的拓扑并允许你执行索引 (index)和节点层面的操作。 2) 查询接口，允许你查询簇并以原始json格式或表格的形式显示检索结果。 3) 显示簇状态，有许多快速访问的tabs用来显示簇的状态。 4) 支持Restful API接口，包含了许多选项产生感兴趣的结果，包括： 第一，请求方式:get,put,post,delete; json请求数据，节点node，路径path。 第二，JSON验证器。 第三，定时请求的能力。 第四，用javascript表达式传输结果的能力。 第五，统计一段时间的结果或该段时间结果比对的能力。

第六，以简单图标的形式绘制传输结果

2、安装

安装步骤：

```
#下载nodejs,head插件运行依赖node
wget https://nodejs.org/dist/v9.9.0/node-v9.9.0-linux-x64.tar.xz
#解压
tar -xf node-v9.9.0-linux-x64.tar.xz
#重命名
mv node-v9.9.0-linux-x64 nodejs
#配置文件
vim /etc/profile
#刷新配置
source /etc/profile
#查询node版本，同时查看是否安装成功
```

```
node -v
#下载head插件
wget https://github.com/mobz/elasticsearch-head/archive/master.zip
#解压
unzip master.zip
#使用淘宝的镜像库进行下载，速度很快
npm install -g cnpm --registry=https://registry.npm.taobao.org
#进入head插件解压目录，执行安装命令
cnpm install
```

3、运行

```
npm start #启动head插件
```

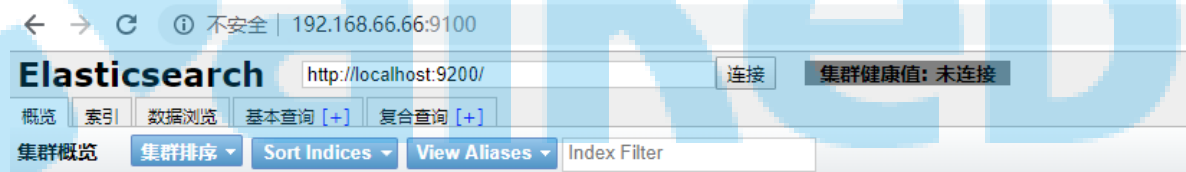
启动运行端口为：9100

```
[root@jackhu elasticsearch-head-master]# npm start

> elasticsearch-head@0.0.0 start /opt/elasticsearch-head-master
> grunt server

(node:3946) ExperimentalWarning: The http2 module is an experimental API.
Running "connect:server" (connect) task
Waiting forever...
Started connect web server on http://localhost:9100
```

访问：



此时未连接，需要配置才能连接：

修改 Gruntfile.js文件：

```
[root@jackhu elasticsearch-head-master]# ll
总用量 228
-rw-r--r--. 1 root root 248 6月 25 21:18 Dockerfile
-rw-r--r--. 1 root root 221 6月 25 21:18 Dockerfile-alpine
-rw-r--r--. 1 root root 104 6月 25 21:18 elasticsearch-head.sublime-project
-rw-r--r--. 1 root root 2171 6月 25 21:18 Gruntfile.js
-rw-r--r--. 1 root root 3482 6月 25 21:18 grunt_fileSets.js
-rw-r--r--. 1 root root 1100 6月 25 21:18 index.html
-rw-r--r--. 1 root root 559 6月 25 21:18 LICENCE
drwxr-xr-x. 376 root root 12288 6月 26 18:43 node_modules
-rw-r--r--. 1 root root 886 6月 25 21:18 package.json
-rw-r--r--. 1 root root 169953 6月 26 18:40 package-lock.json
-rw-r--r--. 1 root root 100 6月 25 21:18 plugin-descriptor.properties
drwxr-xr-x. 4 root root 53 6月 25 21:18 proxy
-rw-r--r--. 1 root root 7034 6月 25 21:18 README.textile
drwxr-xr-x. 5 root root 140 6月 25 21:18 _site
drwxr-xr-x. 4 root root 31 6月 25 21:18 src
drwxr-xr-x. 4 root root 70 6月 25 21:18 test
```

修改如下:

```
connect: {
  server: {
    options: {
      port: 9100,
      base: '.',
      keepalive: true,
      hostname: '*'
    }
  }
}
```

修改_site/app.js

修改IP地址, 连接elasticsearch

```
app.App = ui.AbstractWidget.extend({
  defaults: {
    base_uri: null
  },
  init: function(parent) {
    this._super();
    this.prefs = services.Preferences.instance();
    this.base_uri = this.config.base_uri || this.prefs.get("app-base_uri") || "http://192.168.66.66:9200";
    if( this.base_uri.charAt( this.base_uri.length - 1 ) !== "/" ) {
      // XHR request fails if the URL is not ending with a "/"
      this.base_uri += "/";
    }
  }
});
```

启用CORS:

当head插件访问es时, 您必须在elasticsearch中启用CORS, 否则您的浏览器将拒绝跨域。

在elasticsearch配置中:

```
http.cors.enabled: true
```

您还必须设置, http.cors.allow-origin因为默认情况下不允许跨域。http.cors.allow-origin: "*" 是允许配置的, 但由于这样配置的任何地方都可以访问, 所以有安全风险。我在集群安装的时候已经配好了、如果你刚配置、需要重启ElasticSearch服务

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

```

访问head插件

