ELK 实时日志分析平台

环境搭建手册

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文 档 说 明

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1 ELK 配置

1.1 组件介绍

Elasticsearch:

是一个基于 Lucene 的搜索服务器。提供搜集、分析、存储数据三大功能。它提供了一个分布式多用户能力的全文搜索引擎，基于 RESTful web 接口。Elasticsearch 是用 Java 开发的，并作为 Apache 许可条款下的开放源码发布，是当前流行的企业级搜索引擎。设计用于云计算中，能够达到实时搜索，稳定，可靠，快速，安装使用方便。

Logstash:

主要是用来日志的搜集、分析、过滤日志的工具。用于管理日志和事件的工具，你可以用它去收集日志、转换日志、解析日志并将他们作为数据提供给其它模块调用，例如搜索、存储等。

Kibana:

是一个优秀的前端日志展示框架，它可以非常详细的将日志转化为各种图表，为用户提供强大的数据可视化支持。

Filebeat: 隶属于 Beats。目前 Beats 包含四种工具：

1.Packetbeat（搜集网络流量数据）

2.Metricbeat（搜集系统、进程和文件系统级别的 CPU 和内存使用情况等数据。通过从操作系统和服务收集指标，帮助您监控服务器及其托管的服务。）

3.Filebeat（搜集文件数据）

4.Winlogbeat（搜集 Windows 事件日志数据）

Kafka：

1.发布和订阅记录流，类似于消息队列或企业消息传递系统。

2.以容错持久的方式存储记录流。

3.处理记录发生的流。

1.2 环境需求

（1）VMware

（2）Centos 6.5

（3）JDK 1.8

（4）nginx

jdk 官方下载地址 http://www.oracle.com/technetwork/java/javase/downloads/index.html

1.3 JDK 安装

1.3.1 卸载旧版本 JDK

查看是否安装过 java

rpm -qa | grep java

rpm -e --nodeps #要卸载的包 (包通过上面的指令可以获取到)

1.3.2 选择安装目录

选择安装 JDK 的位置/opt/install，如果存在这个目录无需创建，一般新到的机器是没有这个目录的，这个我们创建这个目录。 指令 需要输入密码

管理员：mkdir /opt/install

非管理员：sudo mkdir /opt/install

1.3.3 上传和解压

将 jdk-8u131-linux-x64.tar.gz 上传到服务器的 /opt/install，使用 SecureFXPortable(或者 filelilla)将文件上传到服务器解压：

cd /opt/install #进入 install 目录

tar -zxvf jdk-8u131-linux-x64.tar.gz #解压到当前目录

```
[root@localhost ~]# rpm -qa | grep java     查询是否安装过java
[root@localhost ~]# mkdir /opt/install     创建目录
[root@localhost ~]# cd /opt/install        切换到目录
[root@localhost install]# ls
jdk-8u161-linux-x64.tar.gz
[root@localhost install]# tar -zxvf jdk-8u161-linux-x64.tar.gz   解压压缩包
```

1.3.4 环境变量配置

vi /etc/profile #打开配置文件

在文档的最后面添加如下内容，记住不要带空格：

export JAVA_HOME=/opt/install/jdk1.8.0_131

export JRE_HOME=$JAVA_HOME/jre

export CLASSPATH=.:$JAVA_HOME/lib/dt.jar:$JAVA_HOME/lib/tools.jar:$JRE_HOME/lib

export PATH=$PATH:$JAVA_HOME/bin

source /etc/profile #让配置生效

java –version #验证是否安装成功

```
[root@localhost install]# java -version
java version "1.8.0_161"
Java(TM) SE Runtime Environment (build 1.8.0_161-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.161-b12, mixed mode)
[root@localhost install]#
```

2. Elasticsearch

2.1 安装 Elasticsearch

将 elasticsearch-6.5.3.tar.gz 上传到服务器的/opt/install，使用 SecureFXPortable(或者 filelilla)将文件上传到服务器解压：

cd /opt/install #进入 install 目录

tar -zxvf elasticsearch-6.5.3.tar.gz　　#解压到当前目录

2.2 运行 Elasticsearch

切换至 elasticsearch-6.5.3 目录下的 bin 目录，使用

./ elasticsearch 运行

```
[root@localhost ~]# cd /opt/install/elasticsearch-6.5.3/bin
[root@localhost bin]# ./elasticsearch
```

2. 3 处理异常

2.3.1 uncaught exception in thread [main]org.elasticsearch.bootstrap.StartupException: java.lang.RuntimeException: can not run elasticsearch as root

原因是 elasticsearch 默认是不支持用 root 用户来启动的。

解决方案一：Des.insecure.allow.root=true

修改/usr/local/elasticsearch-2.4.0/bin/elasticsearch，

添加 ES_JAVA_OPTS="-Des.insecure.allow.root=true"

或执行时添加： sh /usr/local/elasticsearch-2.4.0/bin/elasticsearch -d -Des.insecure.allow.root=true

注意：正式环境用 root 运行可能会有安全风险，不建议用 root 来跑。

解决方案二：添加专门的用户

```
useradd elastic
chown -R elastic:elastic  elasticsearch-2.4.0
```

```
su elastic
sh /usr/local/elasticsearch-2.4.0/bin/elasticsearch -d
```

2.3.2 Could not register mbeans java.security.AccessControlException: access denied ("javax.management.MBeanTrustPermission" "register")

sudo chown -R noroot:noroot elasticsearch 改变 elasticsearch 文件夹所有者到当前用户

这是因为 elasticsearch 需要读写配置文件，我们需要给予 config 文件夹权限，需要新建了 elsearch 用户，elsearch 用户不具备读写权限，因此还是会报错，解决方法是切换到管理员账户，赋予权限即可：

sudo –root 切换至管理员权限

chmod -R 775 config 赋予权限

2.3.3 bootstrap checks failed[1]: max file descriptors [4096] for elasticsearch process is too low, increase to at least [65536]

原因：无法创建本地文件问题,用户最大可创建文件数太小

解决方案：切换到 root 用户，编辑 limits.conf 配置文件， 添加类似如下内容：

vim /etc/security/limits.conf

添加如下内容:

```
*  soft nofile 65536
* hard nofile 131072
* soft nproc 2048
* hard nproc 4096
```

2.3.4 max number of threads [1024] for user [tzs] is too low, increase to at least [2048]

原因：无法创建本地线程问题,用户最大可创建线程数太小

解决方案：切换到 root 用户，进入 limits.d 目录下，修改 90-nproc.conf 配置文件。

vim /etc/security/limits.d/90-nproc.conf

找到如下内容：

soft nproc 1024

修改为

soft nproc 2048

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

原因：最大虚拟内存太小

root 用户执行命令：

sysctl -w vm.max_map_count=262144

或者修改 /etc/sysctl.conf 文件，添加 “vm.max_map_count”设置 设置后，可以使用 $ sysctl –p

2.3.6 java.lang.IllegalArgumentException:property [elasticsearch.version] is missing for plugin [head]

在 es 的配置文件中加：

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

2.4 集群部署

2.4.1 配置节点

采用三台 CentOS7.3 部署 Elasticsearch 集群，需要不同的节点名和 IP

系统	节点名	IP 地址
CentOs6.5	node-1	192.168.127.122
CentOs6.5	node-2	192.168.127.123
CentOs6.5	node-3	192.168.127.124

2.4.2 修改配置文件

使用命令 vim /opt/install/ elasticsearch-6.5.3/config/elasticsearch.yml

下面增加以下内容

```
bootstrap.memory_lock: false

bootstrap.system_call_filter: false


#绑定的ip地址
network.host: 192.168.127.122
##设置对外服务的http端口，默认为9200
http.port: 9200
## 设置节点间交互的tcp端口,默认是9300
transport.tcp.port: 9300

#集群的名称
cluster.name: es6.2
##节点名称,其余两个节点分别为node-2 和node-3
node.name: node-1
##指定该节点是否有资格被选举成为master节点，默认是true，es是默认集群中的第一台机器为master，如果这台机挂了就会重新选举master
node.master: true
##允许该节点存储数据(默认开启)
node.data: true
##索引数据的存储路径
path.data: /opt/install/elasticsearch-6.5.3/data
##日志文件的存储路径
path.logs: /opt/install/elasticsearch-6.5.3/logs

discovery.zen.ping.unicast.hosts: ["192.168.127.122:9300", "192.168.127.123:9300", "192.168.127.124:9300"]
##如果没有这种设置,遭受网络故障的集群就有可能将集群分成两个独立的集群 - 分裂的大脑 - 这将导致数据丢失
discovery.zen.minimum_master_nodes: 3
```

2.4.3 集群配置

将该文件复制到不同虚拟机下，设置对应的 ip 和节点名称（不推荐）

按照单机配置依次安装（推荐）

2.4.4 集群异常

```
[2019-03-11T01:44:14,104][INFO ][o.e.d.z.ZenDiscovery     ] [node-2] failed to s
end join request to master [{node-1}{TxXDw2xTROG37YTtmUno4Q}{_NwfjV0cQY-yLSlcgfm
haA}{192.168.127.122}{192.168.127.122:9300}{ml.machine_memory=1028517888, ml.max
_open_jobs=20, xpack.installed=true, ml.enabled=true}], reason [RemoteTransportE
xception[[node-1][192.168.127.122:9300][internal:discovery/zen/join]]; nested: N
otMasterException[Node [{node-1}{TxXDw2xTROG37YTtmUno4Q}{_NwfjV0cQY-yLSlcgfmhaA}
{192.168.127.122}{192.168.127.122:9300}{ml.machine_memory=1028517888, xpack.inst
alled=true, ml.max_open_jobs=20, ml.enabled=true}] not master for join request];
 ], tried [3] times
```

解决方法：删除 data 目录下的 nodes 文件

rm –rf nodes

```
org.elasticsearch.bootstrap.StartupException: BindTransportException[Failed to b
ind to [9300]]; nested: BindException[Address already in use];
        at org.elasticsearch.bootstrap.Elasticsearch.init(Elasticsearch.java:140
) ~[elasticsearch-6.5.3.jar:6.5.3]
        at org.elasticsearch.bootstrap.Elasticsearch.execute(Elasticsearch.java:
127) ~[elasticsearch-6.5.3.jar:6.5.3]
        at org.elasticsearch.cli.EnvironmentAwareCommand.execute(EnvironmentAwar
eCommand.java:86) ~[elasticsearch-6.5.3.jar:6.5.3]
        at org.elasticsearch.cli.Command.mainWithoutErrorHandling(Command.java:1
24) ~[elasticsearch-cli-6.5.3.jar:6.5.3]
```

原因：端口占用

解决方法：

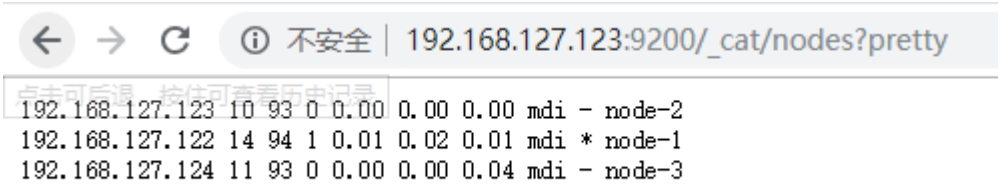
```
[root@localhost logs]# jps
2904 Jps
2796 Elasticsearch
[root@localhost logs]# kill -9 2796
```

2.5 测试

curl -X GET http://192.168.127.122:9200/　　（输入自己的 IP）

```
[root@localhost ~]# curl -X GET http://192.168.127.122:9200/
{
  "name" : "node-1",
  "cluster_name" : "es6.2",
  "cluster_uuid" : "GD1wh4zNTkqnGR-2VrcUbQ",
  "version" : {
    "number" : "6.5.3",
    "build_flavor" : "default",
    "build_type" : "tar",
    "build_hash" : "159a78a",
    "build_date" : "2018-12-06T20:11:28.826501Z",
    "build_snapshot" : false,
    "lucene_version" : "7.5.0",
    "minimum_wire_compatibility_version" : "5.6.0",
    "minimum_index_compatibility_version" : "5.0.0"
  },
  "tagline" : "You Know, for Search"
}
```

浏览器输入：http://192.168.127.122:9200/_cat/nodes?pretty



3.Kibana

3.1 安装 Kibana

注意：**ELK 下整套环境必须统一版本！！！**

将安装压缩包复制至/opt/install 目录下解压缩，然后修改配置文件

`kibana-6.5.3/config/kibana.yml`

添加：

server.host: "192.168.127.122"

server.name: "your-hostname"

elasticsearch.url: http://192.168.127.122:9200

kibana.index: ".kibana"

```
# To allow connections from remote users, set this parameter to a non-loopback address.
server.host: "192.168.127.122"

# Enables you to specify a path to mount Kibana at if you are running behind a proxy.
# Use the `server.rewriteBasePath` setting to tell Kibana if it should remove the basePath
# from requests it receives, and to prevent a deprecation warning at startup.
# This setting cannot end in a slash.
#server.basePath: ""

# Specifies whether Kibana should rewrite requests that are prefixed with
# `server.basePath` or require that they are rewritten by your reverse proxy.
# This setting was effectively always `false` before Kibana 6.3 and will
# default to `true` starting in Kibana 7.0.
#server.rewriteBasePath: false

# The maximum payload size in bytes for incoming server requests.
#server.maxPayloadBytes: 1048576

# The Kibana server's name.  This is used for display purposes.
server.name: "your-hostname"

# The URL of the Elasticsearch instance to use for all your queries.
elasticsearch.url: "http://192.168.127.122:9200"

# When this setting's value is true Kibana uses the hostname specified in the server.host
# setting. When the value of this setting is false, Kibana uses the hostname of the host
# that connects to this Kibana instance.
#elasticsearch.preserveHost: true

# Kibana uses an index in Elasticsearch to store saved searches, visualizations and
# dashboards. Kibana creates a new index if the index doesn't already exist.
kibana.index: ".kibana"
```

3.2 运行 Kibana

在 /usr/local/kibana-5.5.2/bin 目录下运行： ./kibana

3.3 连接测试

Web 界面访问: http://192.168.127.122:5601，如果此时需要输入用户名

和密码登录,默认分别是 elastic 和 changeme

4.kafka

4.1 安装

4.2 配置 zookeeper

4.2.1 先通过配置文件，建立 zookeeper 集群，修改 config 下的 zookeeper.properties 文件：

```
dataDir=/opt/install/kafka_2.11-1.1.0//zookeeper
dataLogDir=/opt/install/kafka_2.11-1.1.0/log/zookeeper/
# the port at which the clients will connect
clientPort=2181
# disable the per-ip limit on the number of connections since this is a non-production config
maxClientCnxns=100
tickTime=2000
initLimit=10
syncLimit=5

server.1=192.168.127.122:2888:3888
server.2=192.168.127.123:2888:3888
server.3=192.168.127.124:2888:3888
```

注意：dataDir 路径与 dataLogDir 路径需要手动创建，配置文件不会自动生成

4.2.2 进入 /opt/install/kafka_2.11-1.1.0/zookeeper 创建 myid 文件，在三个服务器下分别写入 1，2，3.

------myid 是 zk 集群用来发现彼此的标识，必须创建，且不能相同；

4.3 搭建 kafka 集群

修改 server.properties 配置文件

```
# The id of the broker. This must be set to a unique integer for each broker.
broker.id=0

############################# Socket Server Settings #############################

# The address the socket server listens on. It will get the value returned from
# java.net.InetAddress.getCanonicalHostName() if not configured.
#   FORMAT:
#     listeners = listener_name://host_name:port
#   EXAMPLE:
#     listeners = PLAINTEXT://your.host.name:9092
listeners=PLAINTEXT://192.168.127.122:9092
```

对应三个服务器分别改成0，1，2

改成对应服务器的地址

```
############################# Log Basics #############################

# A comma separated list of directories under which to store log files
log.dirs=/opt/install/kafka_2.11-1.1.0/log/kafka
```

手动创建对应路径，日志生成地址

```
############################# Zookeeper #############################

# Zookeeper connection string (see zookeeper docs for details).
# This is a comma separated host:port pairs, each corresponding to a zk
# server. e.g. "127.0.0.1:3000,127.0.0.1:3001,127.0.0.1:3002".
# You can also append an optional chroot string to the urls to specify the
# root directory for all kafka znodes.
zookeeper.connect=192.168.127.122:2181,192.168.127.123:2181,192.168.127.124:2181

# Timeout in ms for connecting to zookeeper
zookeeper.connection.timeout.ms=6000
```

设置zookeeper集群路径

4.4 启动 kafka

启动 kafka 需要先启动 zookeeper，kafka 目录下输入

./bin/zookeeper-server-start.sh config/zookeeper.properties &

将三台服务器的 zookeeper 全部启动。

然后 kafka 目录下输入

./bin/kafka-server-start.sh config/server.properties &

三台服务器全部启动无报错即成功

4.5 创建 topic

创建一个叫做“test”的 topic，它只有一个分区，一个副本。

分区数量影响可以同时消费 topic 的用户数量，如果想要两个 logstash 同时消费同样的 topic 数据，要建立消费者组

bin/kafka-topics.sh --create --zookeeper 192.168.127.122:2181 --replication-factor 3 --partitions 3 --topic test

可以通过 list 命令查看创建的 topic:

bin/kafka-topics.sh --list --zookeeper 192.168.127.122:2181

4.6 生产者与消费者

模拟 kafka 的输入与输出功能，可以使用用来测试数据的联通

生产者: bin/kafka-console-producer.sh --broker-list 192.168.127.122:9092 --topic test

```
[root@localhost kafka_2.11-1.1.0]# bin/kafka-console-producer.sh --broker-list 192.168.127.122:9092 --topic test
>hello, is kafka
>this is test
>{"name":"nihao"}
>
```

消费者: bin/kafka-console-consumer.sh --bootstrap-server 192.168.127.122:9092 --topic test

```
[root@localhost kafka_2.11-1.1.0]# bin/kafka-console-consumer.sh --bootstrap-server 192.168.127.122:9092 --topic test
hello, is kafka
this is test
{"name":"nihao"}
```

5.Logstash

5.1 安装 Logstash

将安装压缩包复制至/opt/install 目录下解压缩，然后进入 bin 目录下 新增配置文件 logstash.conf，文件内容：

```
input {
  kafka {
    #kafka集群地址
    bootstrap_servers => "192.168.127.122:9092,192.168.127.123:9092,192.168.127.124:9092"
    #收集的topic的信息
    topics => ["test"]
    #不同的logstash配置不同的消费者组，实现一收多发
    group_id => "test-consumer-group"
    #消费线程数
    consumer_threads => 3
    #是否将kafka信息传输
    decorate_events => false
    #不存储为message，而是json
    codec => json
  }
}
```

```
filter{
}

output {
  elasticsearch {
    #ES的集群地址
    hosts => ["192.168.127.122:9200","192.168.127.123:9200","192.168.127.124:9200"]
    #传入的index名称格式
    index => "logstash-%{+YYYY.MM.dd}"
    #每个输出插件的工作work数量
    workers => 1
  }
  #输出到控制台
  stdout{
        codec => rubydebug
  }
}
```

注意：配置文件中不要写注释

5.2 运行 Logstash

在 bin 目录下运行 `./logstash -f logstash.conf`

配置 `stdou{codec => rubydebug}`,所有通过 `logstash` 的数据都会在控制台显示

```
[2019-04-07T18:26:23,642][ERROR][logstash.codecs.json     ] JSON parse error, original data now in message field {:err
zed token 'hello': was expecting ('true', 'false' or 'null')
 at [Source: (String)"hello, is kafka"; line: 1, column: 6]>, :data=>"hello, is kafka"}
{
          "tags" => [
        [0] "_jsonparsefailure"
    ],
       "message" => "hello, is kafka",
      "@version" => "1",
    "@timestamp" => 2019-04-08T01:26:23.642Z
}
[2019-04-07T18:26:32,685][ERROR][logstash.codecs.json     ] JSON parse error, original data now in message field {:err
zed token 'this': was expecting 'null', 'true', 'false' or NaN
 at [Source: (String)"this is test"; line: 1, column: 5]>, :data=>"this is test"}
{
          "tags" => [
        [0] "_jsonparsefailure"
    ],
       "message" => "this is test",
      "@version" => "1",
    "@timestamp" => 2019-04-08T01:26:32.686Z
}
{
          "name" => "nihao",
      "@version" => "1",
    "@timestamp" => 2019-04-08T01:28:36.223Z
}
```

注：配合 kafka 生产者来测试 logstash 联通

6.nginx (用来代替数据源测试)

6.1nginx 是什么

Nginx (engine x) 是一个高性能的 HTTP 和反向代理服务器，也是一个 IMAP/POP3/SMTP 服务器。Nginx 是由伊戈尔 •赛索耶夫为俄罗斯访问量第二的 Rambler.ru 站点（俄文：Рамблер）开发的，第一个公开版本 0.1.0 发布于 2004 年 10 月 4 日。它解决了服务器的 C10K（就是在一秒之内连接客户端的数目为 10k 即 1 万）问题。它的设计不像传统的服务器那样使用线程处理请求，而是一个更加高级的机制—事件驱动机制，是一种异步事件驱动结构。

6.2 nginx 下载和安装

6.2.1 下载源文件

cd /opt/install　　切换到指定目录中

wget http://nginx.org/download/nginx-1.10.0.tar.gz　下载 nginx

tar -zxvf nginx-1.10.0.tar.gz　　解压

6.2.2 安装依赖项

yum -y install gcc pcre pcre-devel zlib zlib-devel openssl openssl-devel　　安装依赖项

6.2.3 配置 nginx 安装选项

这里只配置安装到/opt/install 目录下，其它选项可执行./configuration －help 查看

cd /opt/install/nginx-1.10.0　　跳转到解压后的目录

./configure --prefix=/usr/local

6.2.4 编译并安装

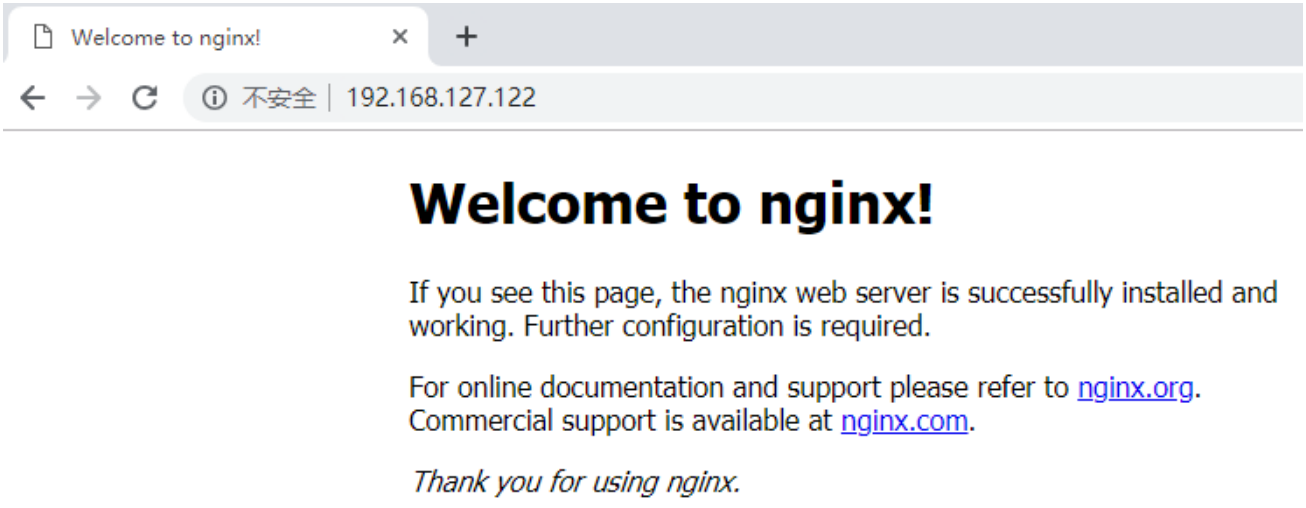
make && make install

6.3 启动并访问

./nging 开启 nginx，

192.168.127.122:80　　登录对应 IP，端口号默认为 80

出现页面



7.filebeat

7.1 安装

安装解压方式同 Logstash，然后修改配置文件

7.2 修改配置文件

```
#=========================== Filebeat inputs =============================

filebeat.inputs:

# Each - is an input. Most options can be set at the input level, so
# you can use different inputs for various configurations.
# Below are the input specific configurations.

- type: log

  # Change to true to enable this input configuration.
  enabled: true

  # Paths that should be crawled and fetched. Glob based paths.
  paths:
      - /usr/local/nginx/logs/access.log

  fields_under_root: true
```

Paths 路径为 nginx 日志存储路径

```
#============================== Kibana =====================================

# Starting with Beats version 6.0.0, the dashboards are loaded via the Kibana API.
# This requires a Kibana endpoint configuration.
setup.kibana:
  host: "192.168.127.122:5601"
```

```
#------------------------------ kafka output --------------------------------
output.kafka:
# initial brokers for reading cluster metadata
  hosts: ["192.168.127.122:9092", "192.168.127.122:9092", "192.168.127.122:9092"]

# message topic selection + partitioning
  topic: '%{[type]}'
  partition.round_robin:
  reachable_only: false
  required_acks: 1
  compression: gzip
  max_message_bytes: 1000000
```

输出为 kafka 集群

注意：topic：:’test’

7.3 运行

在 filebeat 的安装目录下 执行

./filebeat -e -c filebeat.yml -d "publish"

7.4 测试

当 nginx 打开并且页面刷新时

控制台会接收到 nginx 的日志并且打印出来

```
2019-03-11T23:57:04.659-0700    DEBUG   [publish]       pipeline/processor.go:308       Publish event: {
  "@timestamp": "2019-03-12T06:57:04.650Z",
  "@metadata": {
    "beat": "filebeat",
    "type": "doc",
    "version": "6.5.3"
  },
  "source": "/usr/local/nginx/logs/access.log",
  "offset": 2351,
  "message": "192.168.127.1 - - [11/Mar/2019:23:57:02 -0700] \"GET / HTTP/1.1\" 304 0 \"-\" \"Mozilla/5.0 (Windows
 Gecko) Chrome/72.0.3626.121 Safari/537.36\"",
  "input": {
    "type": "log"
  },
  "prospector": {
    "type": "log"
  },
  "beat": {
    "name": "localhost.localdomain",
    "hostname": "localhost.localdomain",
    "version": "6.5.3"
  },
  "host": {
    "name": "localhost.localdomain",
    "architecture": "x86_64",
    "os": {
      "platform": "centos",
      "version": "6.5 (Final)",
      "family": "redhat",
      "codename": "Final"
    },
    "containerized": true
```

8.fluentd 的安装与交互 kafka

注意：Fluentd 在架构中与 filebeat 起到同样的收集传输作用

8.1 安装 fluentd

```
curl -L https://toolbelt.treasuredata.com/sh/install-redhat-td-agent2.sh | sh
```

8.2 安装中异常

8.2.1 culr：(35) SSL connect error

```
[root@localhost opt]# curl -L https://toolbelt.treasuredata.com/sh/install-redhat-td-agent2.sh | sh
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
curl: (35) SSL connect error
```

无法在服务器使用 curl 命令访问 https 域名,原因是 nss 版本有点旧了

yum -y update nss 更新一下

8.2.2 You could try using --skip-broken to work around the problem

```
Error: Package: gstreamer-plugins-bad-0.10.19-3.el6.rf.x86_64 (@rpmforge)
           Requires: libmodplug.so.0()(64bit)
           Removing: libmodplug-0.8.7-1.el6.rf.x86_64 (@rpmforge)
               libmodplug.so.0()(64bit)
           Updated By: 1:libmodplug-0.8.8.5-1.el6.x86_64 (epel)
               Not found
 You could try using --skip-broken to work around the problem
 You could try running: rpm -Va --nofiles --nodigest
```

解决方法：

1. 进入 yum 源配置文件　　cd /etc/yum.repos.d
2. 备份一下当前的源，以防出错后可以还原回来 mv ./CentOS-Base.repo ./CentOS-Base-repo.bak
3. 下载网易 163 的源 wget http://mirrors.163.com/.help/CentOS7-Base-163.repo
4. 清理一下旧包 yum clean all
5. 把下载下来文件 CentOS7-Base-163.repo 设置成为默认源 mv CentOS7-Base-163.repo CentOS-Base.repo
6. 生成缓存即可用 163 源了 yum makeca

```
[root@localhost ~]# yum install php
已加载插件：fastestmirror, langpacks
Loading mirror speeds from cached hostfile
正在解决依赖关系
--> 正在检查事务
---> 软件包 php.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php.x86_64.0.5.4.16-43.el7_4 将被 更新
--> 正在处理依赖关系 php-common(x86-64) = 5.4.16-43.el7_4，它被软件包 php-5.4.16-43.el7_4.x86_64 需要
--> 正在处理依赖关系 php-cli(x86-64) = 5.4.16-43.el7_4，它被软件包 php-5.4.16-43.el7_4.x86_64 需要
--> 正在检查事务
---> 软件包 php-cli.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php-cli.x86_64.0.5.4.16-43.el7_4 将被 更新
---> 软件包 php-common.x86_64.0.5.4.16-42.el7 将被 升级
--> 正在处理依赖关系 php-common(x86-64) = 5.4.16-42.el7，它被软件包 php-pdo-5.4.16-42.el7.x86_64 需要
--> 正在处理依赖关系 php-common(x86-64) = 5.4.16-42.el7，它被软件包 php-process-5.4.16-42.el7.x86_64 需要
--> 正在处理依赖关系 php-common(x86-64) = 5.4.16-42.el7，它被软件包 php-xml-5.4.16-42.el7.x86_64 需要
--> 正在处理依赖关系 php-common(x86-64) = 5.4.16-42.el7，它被软件包 php-gd-5.4.16-42.el7.x86_64 需要
---> 软件包 php-common.x86_64.0.5.4.16-43.el7_4 将被 更新
--> 正在检查事务
---> 软件包 php-gd.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php-gd.x86_64.0.5.4.16-43.el7_4 将被 更新
---> 软件包 php-pdo.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php-pdo.x86_64.0.5.4.16-43.el7_4 将被 更新
---> 软件包 php-process.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php-process.x86_64.0.5.4.16-43.el7_4 将被 更新
---> 软件包 php-xml.x86_64.0.5.4.16-42.el7 将被 升级
---> 软件包 php-xml.x86_64.0.5.4.16-43.el7_4 将被 更新
--> 解决依赖关系完成
```

8.3 配置 kafka

配置 source 为读取 nginx 日志

```
<source>
  type tail
  format /^(?<remote>[^ ]*) (?<host>[-]) (?<user>[^ ]*) \[(?<time>[^\]]*)\] "(?<method>\S+)(?: +(?<path>[^\"]*) +\S*)?" (?<code>[^ ]*) (?<size>[^ ]*) "(?<referer>[^\"]*)" "(?<agent>[^\"]*)"/
  path /usr/local/nginx/logs/access.log
  pos_file /usr/local/nginx/logs/access.log.pos
  tag nginx.tag
  time_key time
  time_format %d/%b/%Y:%H:%M:%S %z
</source>
```

<source>
type tail
format /^(?<remote>[^]*) (?<host>[-]) (?<user>[^]*) \[(?<time>[^\]]*)\] "(?<method>\S+)(?: +(?<path>[^\"]*) +\S*)?" (?<code>[^]*) (?<size>[^]*) "(?<referer>[^\"]*)" "(?<agent>[^\"]*)"/
path /usr/local/nginx/logs/access.log
pos_file /usr/local/nginx/logs/access.log.pos
tag nginx.tag
time_key time
time_format %d/%b/%Y:%H:%M:%S %z
</source>

配置输出到 kafka

```
<match *.*>
@type kafka
brokers 192.168.127.122:9092,192.168.127.124:9092,192.168.127.123:9092
#zookeeper 192.168.127.122:2181
default_topic test
output_data_type json
</match>
```

<match *.*>
@type kafka
brokers 192.168.127.122:9092,192.168.127.124:9092,192.168.127.123:9092
#zookeeper 192.168.127.122:2181
default_topic test
output_data_type json
</match>

因为没有下载 zookeeper 插件 所以直接输出到 kafka

8.4 测试 kafka 消费者

```
bin/kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic test --from-beginning
```

创建消费者并且刷新 nginx 产生日志


```
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/72.0.3626.121 Safari/537.36"}
```


获取日志传输成功！

9.测试完整数据联通

数据流向:nginx(应用产生日志)

=> filebeat/fluentd(收集日志并传输)

=> kafka(消息队列，高并发高可用)

=> logstash (抓取 kafka 中的日志，导入 ELK 系统)

=> elasticsearch (储存数据，提供查询)

=> kibana/elasticsearch-head (提供 ES 的可视化)

9.1 nginx 访问

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

9.2 filebeat 接收成功

```
2019-04-07T19:09:18.366-0700    DEBUG   [publish]       pipeline/processor.go:308       Publish event: {
  "@timestamp": "2019-04-08T02:09:18.307Z",
  "@metadata": {
    "beat": "filebeat",
    "type": "doc",
    "version": "6.5.3"
  },
  "message": "192.168.127.1 - - [07/Apr/2019:19:09:15 -0700] \"GET / HTTP/1.1\" 304 0 \"-\" \"Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like
 Gecko) Chrome/73.0.3683.86 Safari/537.36\"",
  "input": {
    "type": "log"
  },
  "prospector": {
    "type": "log"
  },
  "host": {
    "name": "localhost.localdomain",
    "containerized": true,
    "architecture": "x86_64",
    "os": {
      "version": "6.5 (Final)",
      "family": "redhat",
      "codename": "Final",
      "platform": "centos"
    }
  },
  "beat": {
    "version": "6.5.3",
    "name": "localhost.localdomain",
    "hostname": "localhost.localdomain"
  },
  "source": "/usr/local/nginx/logs/access.log",
  "offset": 28543
}
```

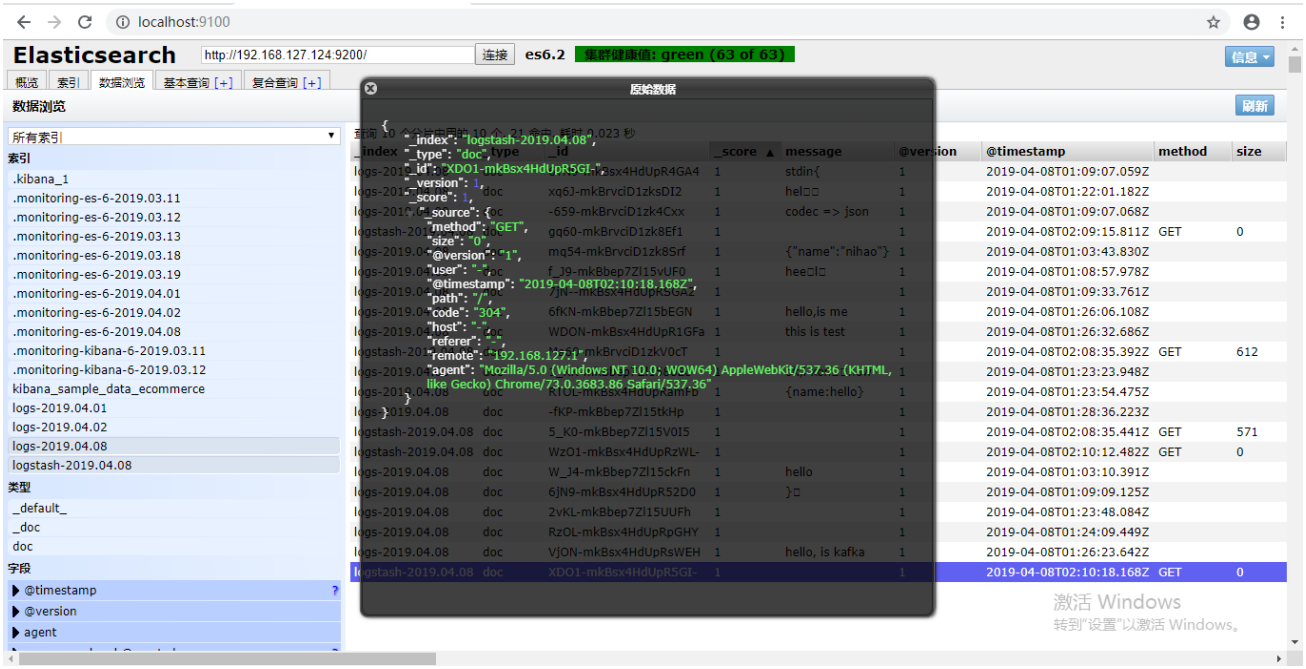
9.3 kafka 消费者成功消费

```
{"remote":"192.168.127.1","host":"-","user":"-","method":"GET","path":"/","code":"304","size":"0","referer":"-","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) Appl
eWebKit/537.36 (KHTML, like Gecko) Chrome/73.0.3683.86 Safari/537.36"}
{"@timestamp":"2019-04-08T02:10:20.377Z","@metadata":{"beat":"filebeat","type":"doc","version":"6.5.3","topic":"test"},"message":"192.168.127.1 - - [07/Apr/2019:1
9:10:18 -0700] \"GET / HTTP/1.1\" 304 0 \"-\" \"Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/73.0.3683.86 Safari/537.36\"","
prospector":{"type":"log"},"input":{"type":"log"},"beat":{"name":"localhost.localdomain","hostname":"localhost.localdomain","version":"6.5.3"},"host":{"name":"loc
alhost.localdomain","architecture":"x86_64","os":{"platform":"centos","version":"6.5 (Final)","family":"redhat","codename":"Final"},"containerized":true},"source"
:"/usr/local/nginx/logs/access.log","offset":28915}
```

9.4 logstash 输出时控制台打印

```
[2019-04-07T19:10:21,527][WARN ][logstash.outputs.elasticsearch] Could not index event to Elasticsearch. {:status=>400, :action=>["index", {:_id=>nil, :_index=>"l
ogstash-2019.04.08", :_type=>"doc", :routing=>nil}, #<LogStash::Event:0x49a3a5a1>], :response=>{"index"=>{"_index"=>"logstash-2019.04.08", "_type"=>"doc", "_id"=>
"8_K1-mkBbep7Zl158ELD", "status"=>400, "error"=>{"type"=>"mapper_parsing_exception", "reason"=>"failed to parse field [host] of type [text]", "caused_by"=>{"type"
=>"illegal_state_exception", "reason"=>"Can't get text on a START_OBJECT at 1:53"}}}}}
{
        "source" => "/usr/local/nginx/logs/access.log",
          "host" => {
         "architecture" => "x86_64",
        "containerized" => true,
                  "name" => "localhost.localdomain",
                    "os" => {
            "codename" => "Final",
             "version" => "6.5 (Final)",
            "platform" => "centos",
              "family" => "redhat"
        }
    },
        "offset" => 28915,
      "@version" => "1",
    "prospector" => {
        "type" => "log"
    },
         "input" => {
        "type" => "log"
    },
    "@timestamp" => 2019-04-08T02:10:20.377Z,
       "message" => "192.168.127.1 - - [07/Apr/2019:19:10:18 -0700] \"GET / HTTP/1.1\" 304 0 \"-\" \"Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTM
L, like Gecko) Chrome/73.0.3683.86 Safari/537.36\"",
           "beat" => {
             "name" => "localhost.localdomain",
         "hostname" => "localhost.localdomain",
          "version" => "6.5.3"
    }
}
```

9.5 可视化界面查询 ES 中数据



注：界面为 elasticsearch-head 插件

{"_index":"logstash-2019.04.08","_type":"doc","_id":"njO_-mkBsx4HdUpRx2Id","_version":1,"_score":1,"_source":{"method":"GET","size":"0","@version":"1","user":"-","@timestamp":"2019-04-08T02:21:05.810Z","path":"/","code":"304","host":"-","referer":"-

","remote":"192.168.127.1","agent":"Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/73.0.3683.86 Safari/537.36"}}