

# Task

1. 搭建Tomcat，并利用模拟输出Log
2. 使用Logstash中间件收集Log到Redis中间件，并同步至Elastic Search
3. 使用Kibana展示Log信息

# Work

## How-to use instance

1. ensure latest version of **Vagrant** and **Virtualbox** installed on local machine, or you can fetch software from below official links:

```
Vagrant:
  http://www.vagrantup.com/downloads.html

Virtualbox:
  https://www.virtualbox.org/wiki/Downloads
```

2. extract the zip package, or you can checkout from <https://github.com/ericstone57/arvat-test>
3. go to project workspace
4. run command to boot up the instance:

```
vagrant up
```

5. wait a moment, it is need time to download vagrant box from internet, which limit by network speed. It will boot the instance up soon after you download complete.
6. check from you browser through <http://127.0.0.1:8080> with kibana3 dashboard
7. if you want to check inside of this instance, execute command:

```
vagrant ssh
// user `vagrant` have sudoer permission
```

## Services:

- <http://127.0.0.1:8080> kibana
- <http://127.0.0.1:9292> elastic search

- <http://127.0.0.1:8090> tomcat instance 1
- <http://127.0.0.1:8091> tomcat instance 2
- <http://127.0.0.1:8092> tomcat instance 3

## Configuration

### Tomcat

- version 7
- 3 instances, listen on port 8080, 8081 and 8082.
- tomcat instance log output to folder `/var/lib/tomcat7/instanceX/logs/`
- an simple HTML welcome page

### Elasticsearch

- version 1.3.4
- standard setup
- listen on port 9200 and 9300

### logstash

- version 1.4.2
- standard install and setup
- configuration files put into `/etc/logstash/conf.d/`
- `/etc/logstash/conf.d/10-tomcat.conf`, collect tomcat logs, include access log and catalina.out
- `/etc/logstash/conf.d/30-redis.conf`, as log queue

### Kibana

- version 3.1.1
- boot by Nginx
- files put into `/var/www/kibana3`

### Redis

- version 1.8

## Explain how the system work

Data flow

from software wise:

logstash shipper --> Redis --> Elasticsearch --> Kibana

from logic wise:

collect and process logs --> queue logs --> store and indexes --> visualization

## logstash

- collects and processes the logs coming, include function like: input, filter, re-format, parse and output
- create the indices
- as shipper, output log to Redis
- easy to managing events and logs

## Redis

- queues up the logs for indexing from logstash

## Elasticsearch

- base on document search engine, apache lucene
- persistent and indexes logs
- real-time searching and display
- distributed
- schema free
- provide RESTful API

## Kibana

- logs data visualization
- time based
- base on AngularJS, easy to adapt

# Notice

The instance running slow due to I just give 2GB memory, for test purpose. You easy to adjust memory setting to speed up performance by change **Vagrantfile** in root of project.

```
vb.customize ["modifyvm", :id, "--memory", "2048"]
```

The vagrant box contains: jdk7, tomcat, nginx, logstash, redis and elasticsearch, so it is big then usual. nearly 4.06GB.

Let me know if you can not download the box from server successful, I will try another way send to your.