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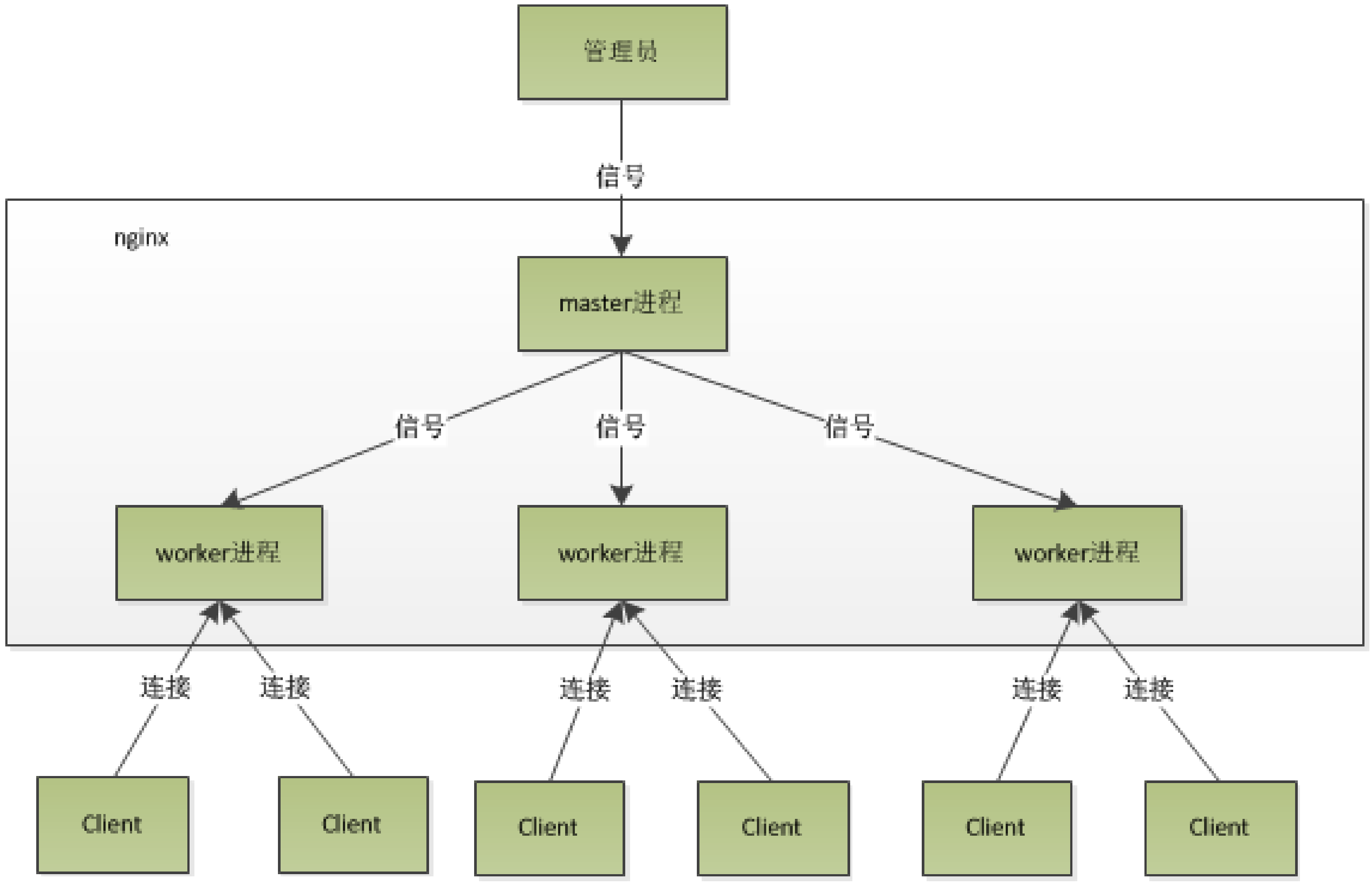
Nginx 基础

Nginx架构


管理员
信号
nginx
master进程
信号
信号
信号
worker进程
worker进程
worker进程
连接
连接
连接
连接
连接
连接
Client
Client
Client
Client
Client
Client

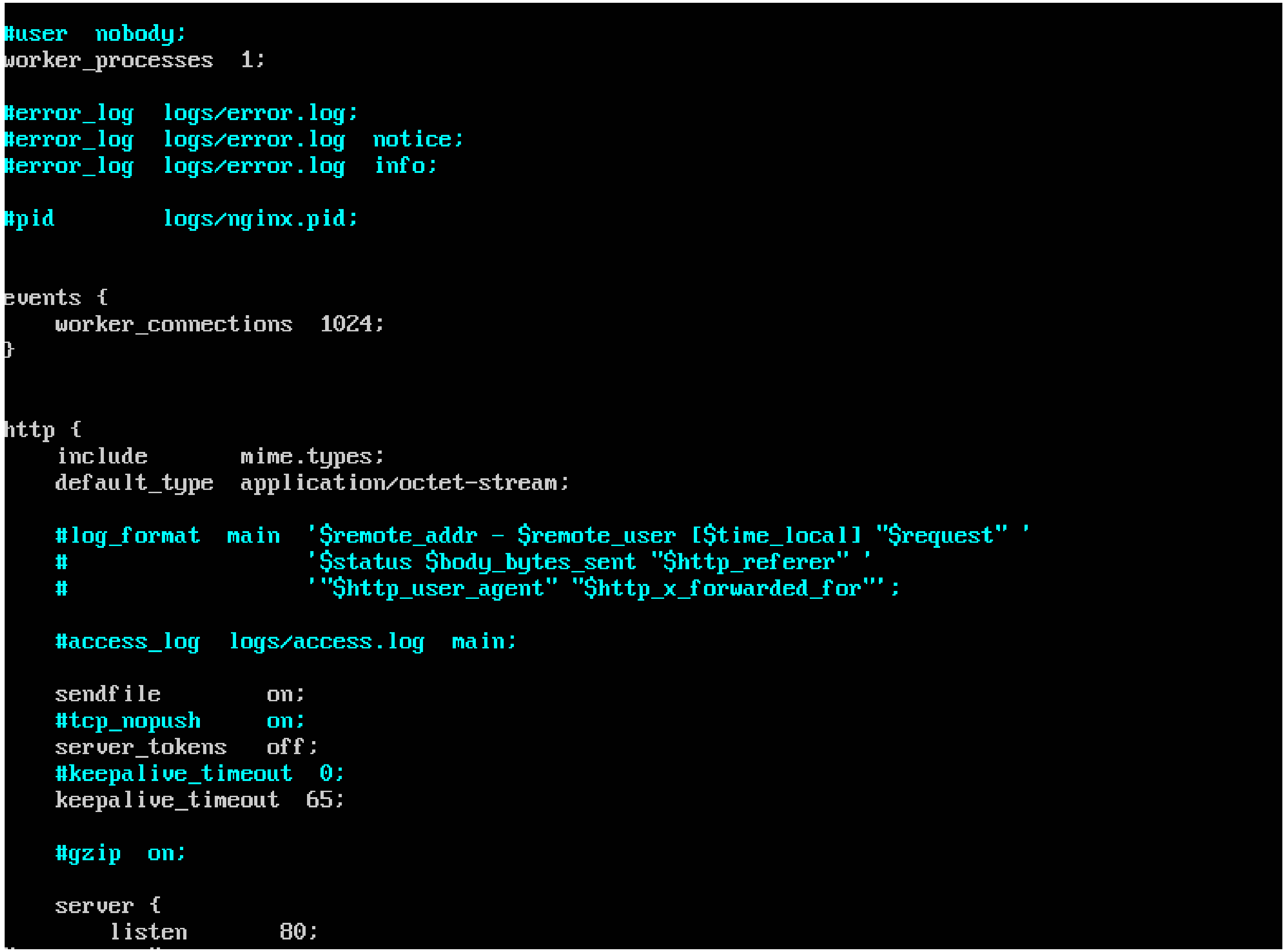
安装nginx

我们采用源码安装方式

```
apt-get install openssl libssl-dev          #解决依赖包openssl安装
apt-get install libpcre3 libpcre3-dev       #解决依赖包pcre安装
apt-get install zlib1g-dev                  #解决依赖包zlib安装
apt-get install build-essential             #解决依赖包gcc问题

./configure --prefix=/usr/local/nginx

 make && make install

 /usr/local/nginx/sbin/nginx -c /usr/local/nginx/conf/nginx.conf
```

nginx.conf

配置文件是nginx的核心！！！
/usr/local/nginx/conf/nginx.conf

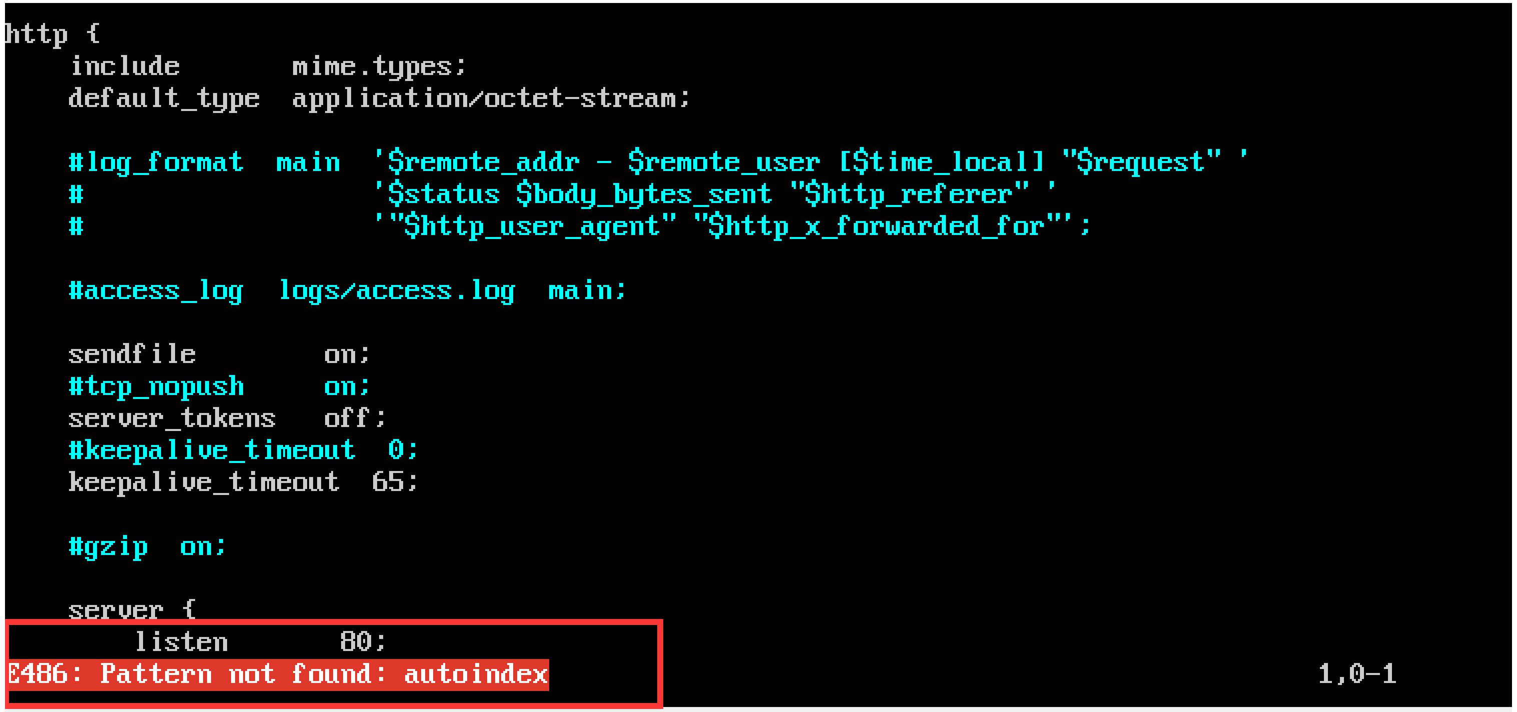


```
#user  nobody;
worker_processes  1;

#error_log  logs/error.log;
#error_log  logs/error.log  notice;
#error_log  logs/error.log  info;

#pid        logs/nginx.pid;


events {
    worker_connections  1024;
}


http {
    include       mime.types;
    default_type  application/octet-stream;

    #log_format  main  '$remote_addr - $remote_user [$time_local] "$request" '
    #                  '$status $body_bytes_sent "$http_referer" '
    #                  '"$http_user_agent" "$http_x_forwarded_for"';

    #access_log  logs/access.log  main;

    sendfile        on;
    #tcp_nopush     on;
    server_tokens   off;
    #keepalive_timeout  0;
    keepalive_timeout  65;

    #gzip  on;

    server {
        listen       80;
```

Nginx 服务器安全加固

禁用autoindex

确保nginx.conf配置文件上禁用autoindex，即autoindex off或者没有配置autoindex



```
http {
    include       mime.types;
    default_type  application/octet-stream;

    #log_format  main  '$remote_addr - $remote_user [$time_local] "$request" '
    #                  '$status $body_bytes_sent "$http_referer" '
    #                  '"$http_user_agent" "$http_x_forwarded_for"';

    #access_log  logs/access.log  main;

    sendfile        on;
    #tcp_nopush     on;
    server_tokens   off;
    #keepalive_timeout  0;
    keepalive_timeout  65;

    #gzip  on;

    server {
        listen       80;
E486: Pattern not found: autoindex                                          1,0-1
```

关闭服务器标记

如果开启的话（默认情况下）所有的错误页面都会显示服务器的版本和信息。nginx.conf配置如下：

```
http{
    include       naxsi_core.rules;
    include      mime.types;
    default_type  application/octet-stream;
    sendfile        on;
    server_tokens off;
    ... ...
```

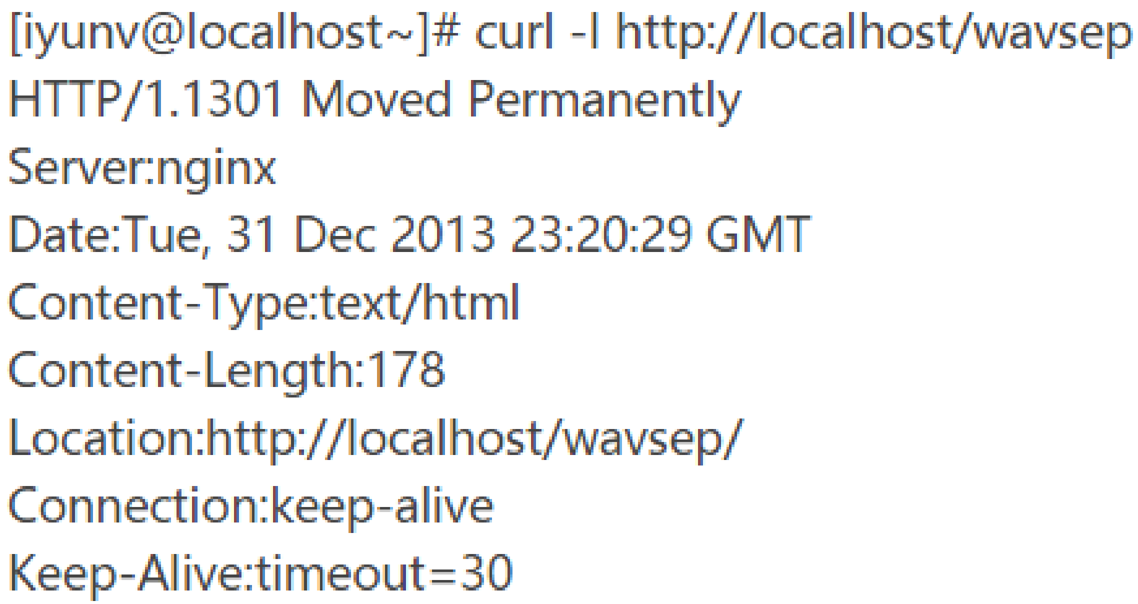
同时修改/usr/local/nginx/conf/fastcgi_params

将里面的

```
fastcgi_param SERVER_SOFTWARE nginx/$nginx_version;
```

修改为：

```
fastcgi_param SERVER_SOFTWARE nginx;
```



```
[iyunv@localhost~]# curl -I http://localhost/wavsep
HTTP/1.1301 Moved Permanently
Server:nginx
Date:Tue, 31 Dec 2013 23:20:29 GMT
Content-Type:text/html
Content-Length:178
Location:http://localhost/wavsep/
Connection:keep-alive
Keep-Alive:timeout=30
```

自定义缓存

设置自定义缓存以限制缓冲区溢出攻击。nginx.conf配置如下：

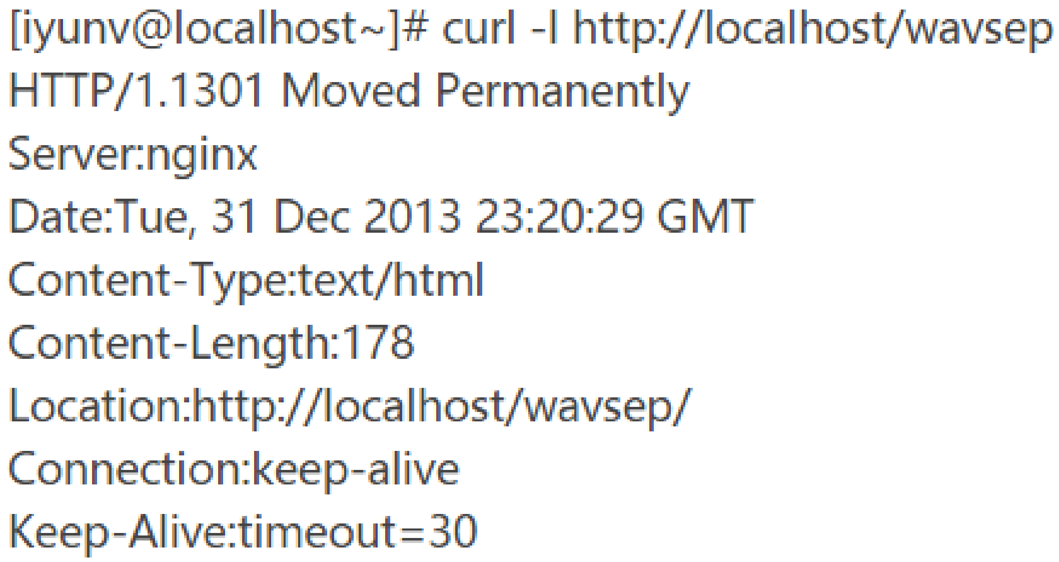
```
http{
  ... ...
  server{
     ... ...
     client_body_buffer_size  16K;
    client_header_buffer_size  1k;
     client_max_body_size  1m;
    large_client_header_buffers  4  8k;
```

注：上述的参数不是最优参数，仅供参考。

timeout设置

设置timeout设低来防御DOS攻击，nginx.conf配置如下：

```
http {
  ... ...
     client_body_timeout   10;
     client_header_timeout  30;
     keepalive_timeout     30  30;
     send_timeout          10;
```

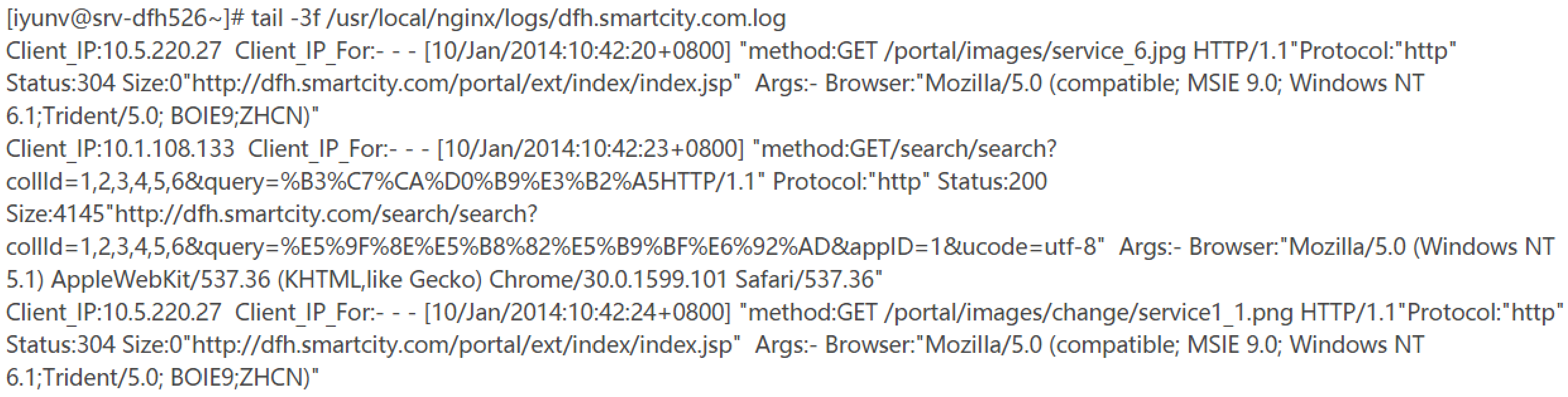


```
[iyunv@localhost~]# curl -I http://localhost/wavsep
HTTP/1.1301 Moved Permanently
Server:nginx
Date:Tue, 31 Dec 2013 23:20:29 GMT
Content-Type:text/html
Content-Length:178
Location:http://localhost/wavsep/
Connection:keep-alive
Keep-Alive:timeout=30
```

配置日志

鉴于日志的输出格式还未确定，目前暂时先使用Nginx默认的日志格式。nginx.conf配置如下：

```
http {
    ......
    log_format  main  '$remote_addr - $remote_user [$time_local]"$request" "$status $body_bytes_sent
"$http_referer"""$http_user_agent" "$http_x_forwarded_for"';
    access_log logs/ access.log  main;
```



```
[iyunv@srv-dfh526~]# tail -3f /usr/local/nginx/logs/dfh.smartcity.com.log
Client_IP:10.5.220.27  Client_IP_For:- - - [10/Jan/2014:10:42:20+0800] "method:GET /portal/images/service_6.jpg HTTP/1.1"Protocol:"http"
Status:304 Size:0"http://dfh.smartcity.com/portal/ext/index/index.jsp"  Args:- Browser:"Mozilla/5.0 (compatible; MSIE 9.0; Windows NT
6.1;Trident/5.0; BOIE9;ZHCN)"
Client_IP:10.1.108.133  Client_IP_For:- - - [10/Jan/2014:10:42:23+0800] "method:GET/search/search?
collId=1,2,3,4,5,6&query=%B3%C7%CA%D0%B9%E3%B2%A5HTTP/1.1" Protocol:"http" Status:200
Size:4145"http://dfh.smartcity.com/search/search?
collId=1,2,3,4,5,6&query=%E5%9F%8E%E5%B8%82%E5%B9%BF%E6%92%AD&appID=1&ucode=utf-8"  Args:- Browser:"Mozilla/5.0 (Windows NT
5.1) AppleWebKit/537.36 (KHTML,like Gecko) Chrome/30.0.1599.101 Safari/537.36"
Client_IP:10.5.220.27  Client_IP_For:- - - [10/Jan/2014:10:42:24+0800] "method:GET /portal/images/change/service1_1.png HTTP/1.1"Protocol:"http"
Status:304 Size:0"http://dfh.smartcity.com/portal/ext/index/index.jsp"  Args:- Browser:"Mozilla/5.0 (compatible; MSIE 9.0; Windows NT
6.1;Trident/5.0; BOIE9;ZHCN)"
```

限制访问

在目前的应用系统中值使用到POST和GET方法，所以除了它们之外，其他方式的请求均可拒绝。Nginx.conf配置如下：

```
server{
      … …
      if($request_method !~ ^(GET|HEAD|POST)$) {
            return404;
         }
      … …
```

限制访问IP

模块 ngx_http_access_module 允许限制某些IP地址的客户端访问。

如下范例：

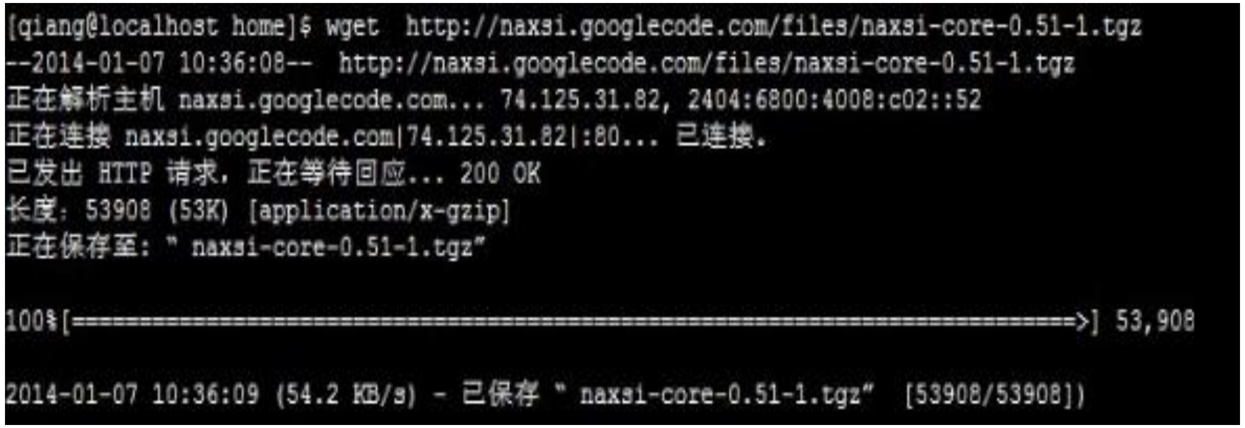
```
location/ {
    deny  192.168.1.1;
    allow 192.168.1.0/24;
    allow 10.1.1.0/16;
    allow 2001:0db8::/32;
    deny  all;
}
```

注：规则按照顺序依次检测，直到匹配到第一条规则。 在这个例子里，IPv4的网络中只有 10.1.1.0/16 和 192.168.1.0/24允许访问，但 192.168.1.1除外, 对于IPv6的网络，只有2001:0db8::/32允许访问。

集成Naxsi模块

Naxsi模块的集成，是基于Nginx已经部署了或已经存在系统中。

第一步：下载naxsi
Wget http://naxsi.googlecode.com/files/naxsi-core-0.51-1.tgz
注：如果不能上网可以事先下载，再上传到服务器中。



```
[qiang@localhost home]$ wget  http://naxsi.googlecode.com/files/naxsi-core-0.51-1.tgz
--2014-01-07 10:36:08--  http://naxsi.googlecode.com/files/naxsi-core-0.51-1.tgz
正在解析主机 naxsi.googlecode.com... 74.125.31.82, 2404:6800:4008:c02::52
正在连接 naxsi.googlecode.com|74.125.31.82|:80... 已连接.
已发出 HTTP 请求，正在等待回应... 200 OK
长度： 53908 (53K) [application/x-gzip]
正在保存至: " naxsi-core-0.51-1.tgz"

100%[=============================================================================>] 53,908

2014-01-07 10:36:09 (54.2 KB/s) - 已保存 " naxsi-core-0.51-1.tgz"  [53908/53908])
```

集成Naxsi模块

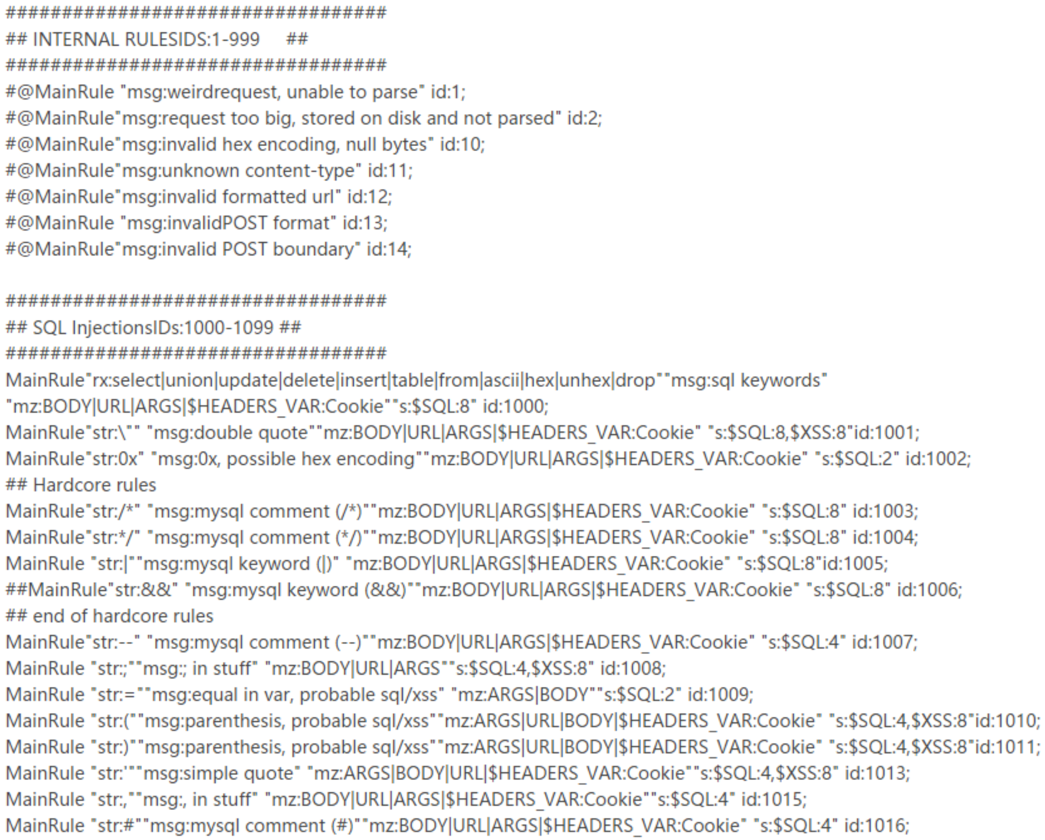
第二步：解压naxsi

[qiang@localhost install]$ tar -zxvfnaxsi-core-0.51-1.tgz

第三步：切换到naxsi-core-0.51-1目录，并复制其配置文件到nginx.conf同目录下

[qiang@localhostnaxsi_config]$ cp naxsi_core.rules /etc/nginx/naxsi_core.rules

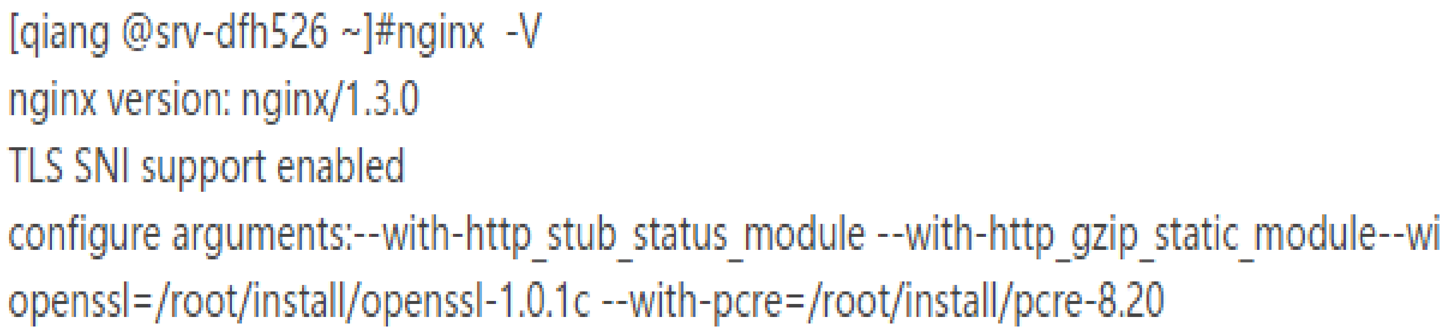
修改naxsi_core.rules的配置如下：



```
##################################
## INTERNAL RULESIDS:1-999     ##
##################################
#@MainRule "msg:weirdrequest, unable to parse" id:1;
#@MainRule"msg:request too big, stored on disk and not parsed" id:2;
#@MainRule"msg:invalid hex encoding, null bytes" id:10;
#@MainRule"msg:unknown content-type" id:11;
#@MainRule"msg:invalid formatted url" id:12;
#@MainRule "msg:invalidPOST format" id:13;
#@MainRule"msg:invalid POST boundary" id:14;

##################################
## SQL InjectionsIDs:1000-1099 ##
##################################
MainRule"rx:select|union|update|delete|insert|table|from|ascii|hex|unhex|drop""msg:sql keywords"
"mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie""s:$SQL:8" id:1000;
MainRule"str:\"" "msg:double quote""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:8,$XSS:8"id:1001;
MainRule"str:0x" "msg:0x, possible hex encoding""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:2" id:1002;
## Hardcore rules
MainRule"str:/*" "msg:mysql comment (/*)""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:8" id:1003;
MainRule"str:*/" "msg:mysql comment (*/)""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:8" id:1004;
MainRule "str:|""msg:mysql keyword (|)" "mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:8"id:1005;
##MainRule"str:&&" "msg:mysql keyword (&&)""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:8" id:1006;
## end of hardcore rules
MainRule"str:--" "msg:mysql comment (--)""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:4" id:1007;
MainRule "str:;""msg:; in stuff" "mz:BODY|URL|ARGS""s:$SQL:4,$XSS:8" id:1008;
MainRule "str:=""msg:equal in var, probable sql/xss" "mz:ARGS|BODY""s:$SQL:2" id:1009;
MainRule "str:(""msg:parenthesis, probable sql/xss""mz:ARGS|URL|BODY|$HEADERS_VAR:Cookie" "s:$SQL:4,$XSS:8"id:1010;
MainRule "str:)""msg:parenthesis, probable sql/xss""mz:ARGS|URL|BODY|$HEADERS_VAR:Cookie" "s:$SQL:4,$XSS:8"id:1011;
MainRule "str:'""msg:simple quote" "mz:ARGS|BODY|URL|$HEADERS_VAR:Cookie""s:$SQL:4,$XSS:8" id:1013;
MainRule "str:,""msg:, in stuff" "mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie""s:$SQL:4" id:1015;
MainRule "str:#""msg:mysql comment (#)""mz:BODY|URL|ARGS|$HEADERS_VAR:Cookie" "s:$SQL:4" id:1016;
```

集成Naxsi模块

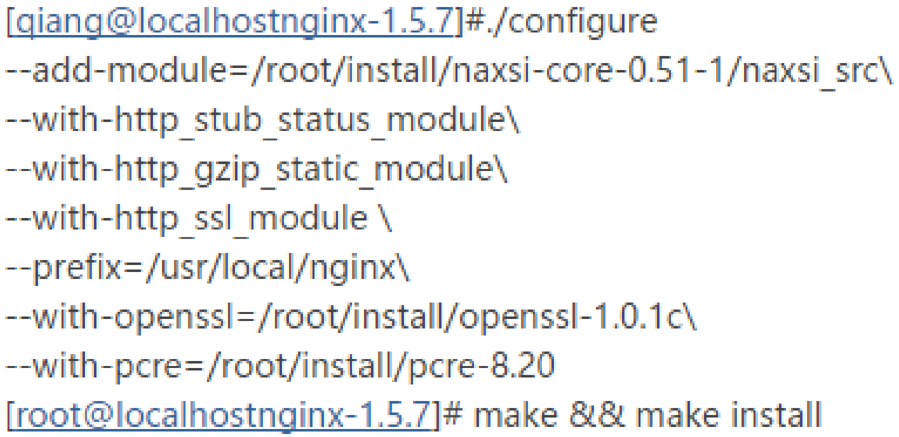
第四步：编译安装Nginx
查看系统原来编译Nginx的参数：



```
[qiang @srv-dfh526 ~]#nginx  -V
nginx version: nginx/1.3.0
TLS SNI support enabled
configure arguments:--with-http_stub_status_module --with-http_gzip_static_module--wi
openssl=/root/install/openssl-1.0.1c --with-pcre=/root/install/pcre-8.20
```

集成Naxsi模块

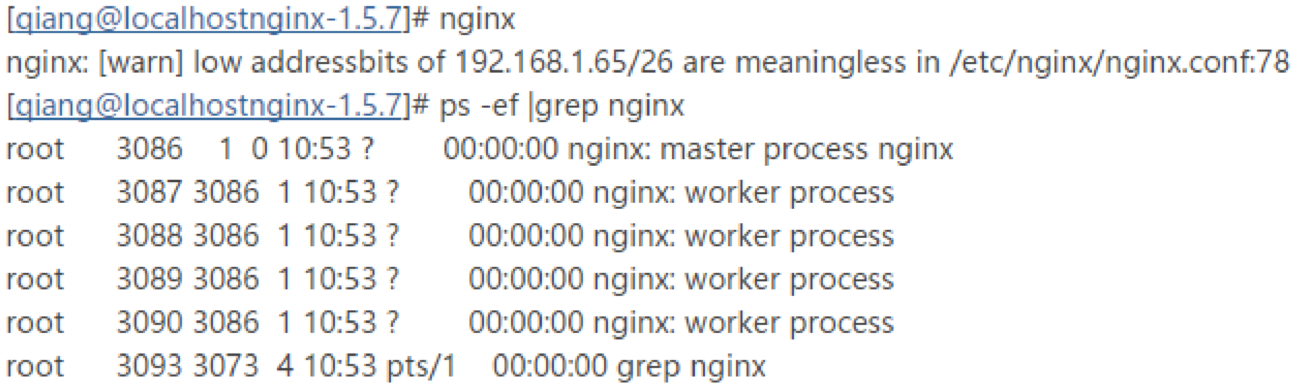
在原来的编译参数的首行加入--add-module=/root/install/naxsi-core-0.51-1/naxsi_src



```
[qiang@localhostnginx-1.5.7]#./configure
--add-module=/root/install/naxsi-core-0.51-1/naxsi_src\
--with-http_stub_status_module\
--with-http_gzip_static_module\
--with-http_ssl_module \
--prefix=/usr/local/nginx\
--with-openssl=/root/install/openssl-1.0.1c\
--with-pcre=/root/install/pcre-8.20
[root@localhostnginx-1.5.7]# make && make install
```

集成Naxsi模块

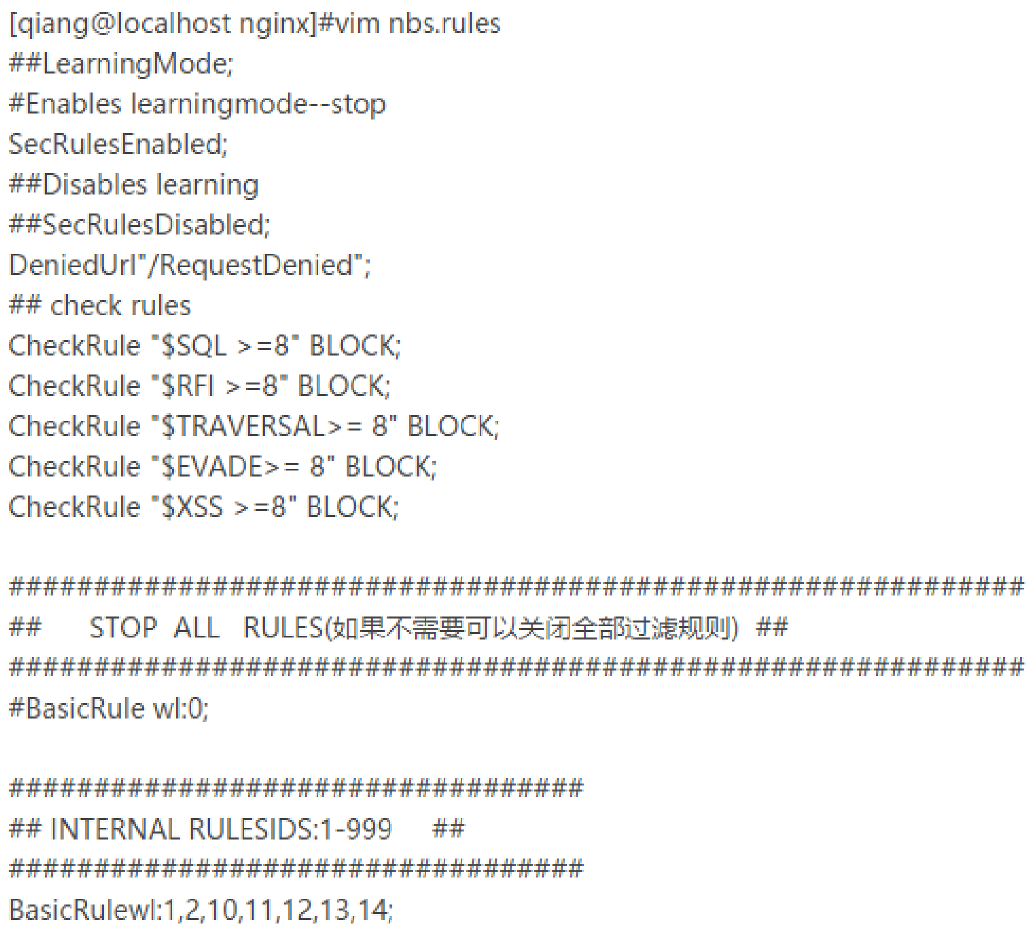
第五步：验证nginx是否安装成功



```
[qiang@localhostnginx-1.5.7]# nginx
nginx: [warn] low addressbits of 192.168.1.65/26 are meaningless in /etc/nginx/nginx.conf:78
[qiang@localhostnginx-1.5.7]# ps -ef |grep nginx
root      3086    1  0 10:53 ?        00:00:00 nginx: master process nginx
root      3087 3086  1 10:53 ?        00:00:00 nginx: worker process
root      3088 3086  1 10:53 ?        00:00:00 nginx: worker process
root      3089 3086  1 10:53 ?        00:00:00 nginx: worker process
root      3090 3086  1 10:53 ?        00:00:00 nginx: worker process
root      3093 3073  4 10:53 pts/1    00:00:00 grep nginx
```

集成Naxsi模块

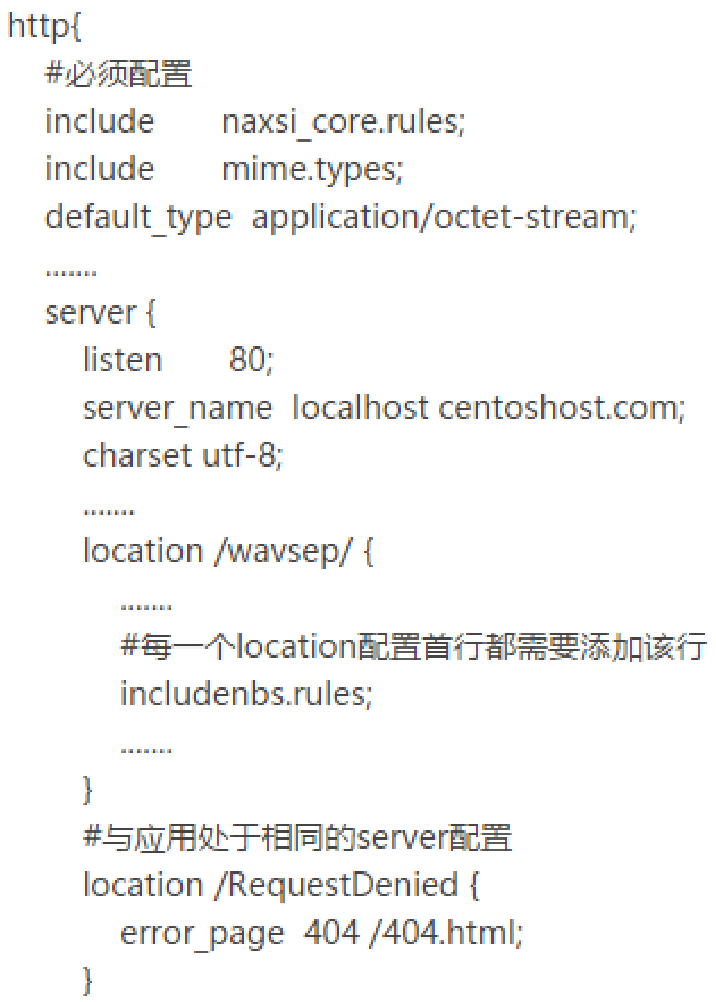
切换目录到与nginx.conf同目录下，新建nbs.rules文件



```
[qiang@localhost nginx]#vim nbs.rules
##LearningMode;
#Enables learningmode--stop
SecRulesEnabled;
##Disables learning
##SecRulesDisabled;
DeniedUrl"/RequestDenied";
## check rules
CheckRule "$SQL >=8" BLOCK;
CheckRule "$RFI >=8" BLOCK;
CheckRule "$TRAVERSAL>= 8" BLOCK;
CheckRule "$EVADE>= 8" BLOCK;
CheckRule "$XSS >=8" BLOCK;

############################################################
##      STOP  ALL   RULES(如果不需要可以关闭全部过滤规则)  ##
############################################################
#BasicRule wl:0;

##################################
## INTERNAL RULESIDS:1-999     ##
##################################
BasicRulewl:1,2,10,11,12,13,14;
```

集成Naxsi模块

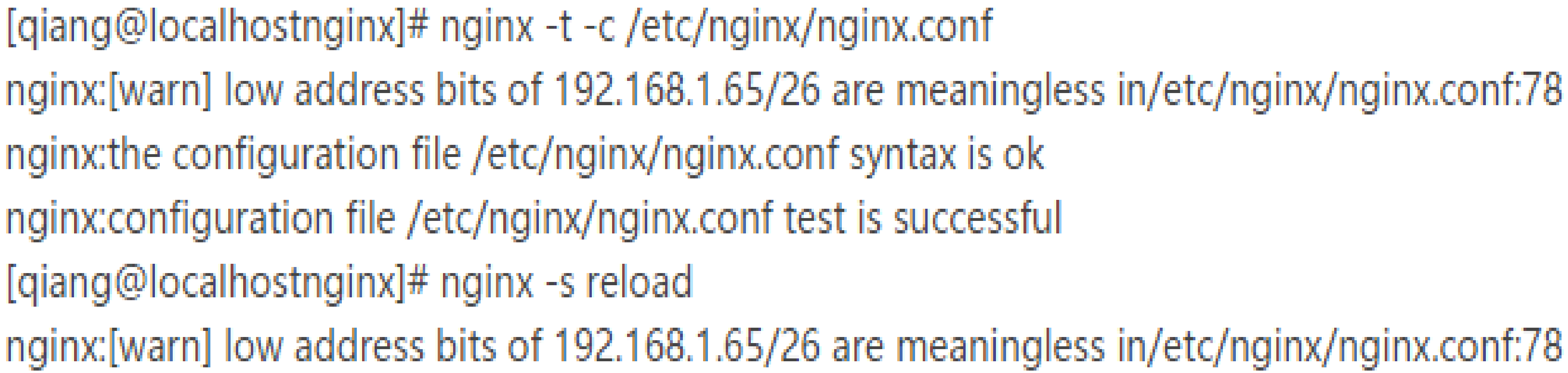
第七步：配置nginx.conf



```
http{
    #必须配置
    include       naxsi_core.rules;
    include       mime.types;
    default_type  application/octet-stream;
    .......
    server {
        listen       80;
        server_name  localhost centoshost.com;
        charset utf-8;
        .......
        location /wavsep/ {
            .......
            #每一个location配置首行都需要添加该行
            includenbs.rules;
            .......
        }
        #与应用处于相同的server配置
        location /RequestDenied {
            error_page  404 /404.html;
        }
```

集成Naxsi模块

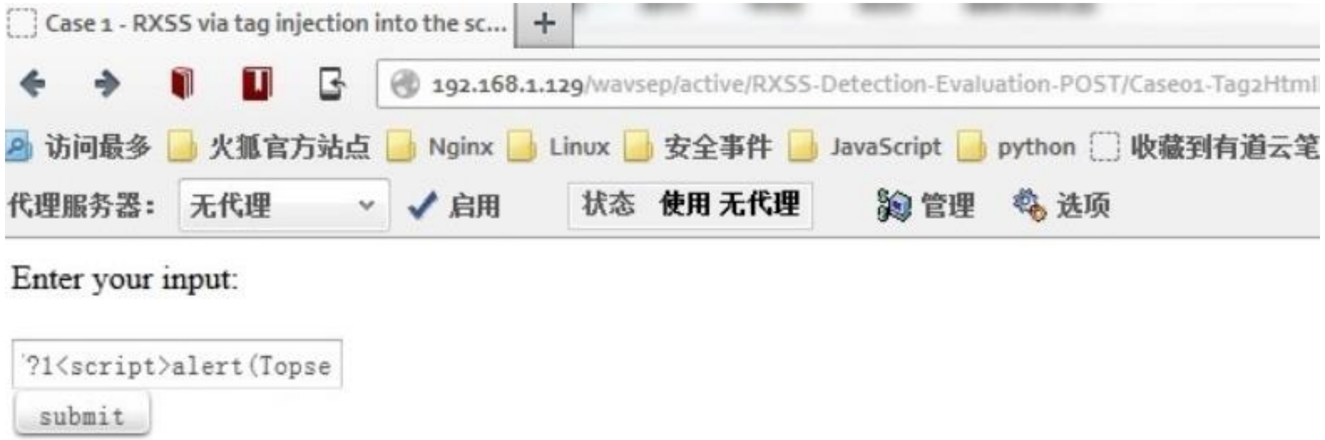
第八步：重启nginx



```
[qiang@localhostnginx]# nginx -t -c /etc/nginx/nginx.conf
nginx:[warn] low address bits of 192.168.1.65/26 are meaningless in/etc/nginx/nginx.conf:78
nginx:the configuration file /etc/nginx/nginx.conf syntax is ok
nginx:configuration file /etc/nginx/nginx.conf test is successful
[qiang@localhostnginx]# nginx -s reload
nginx:[warn] low address bits of 192.168.1.65/26 are meaningless in/etc/nginx/nginx.conf:78
```

集成Naxsi模块

第九步：测试拦截规则是否启用
上述的规则仅过滤“<”、“>”。
测试XSS注入



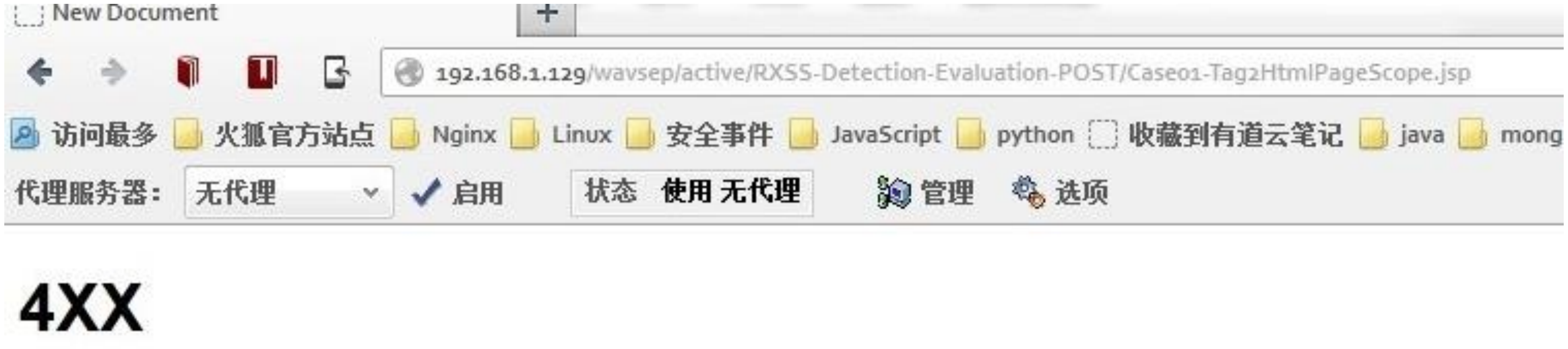
Case 1 - RXSS via tag injection into the sc...
+
192.168.1.129/wavsep/active/RXSS-Detection-Evaluation-POST/Case01-Tag2Html
访问最多
火狐官方站点
Nginx
Linux
安全事件
JavaScript
python
收藏到有道云笔
代理服务器：
无代理
启用
状态 使用 无代理
管理
选项
submit

Enter your input:

'?1<script>alert(Topse

集成Naxsi模块

结果：



4XX

THANK YOU