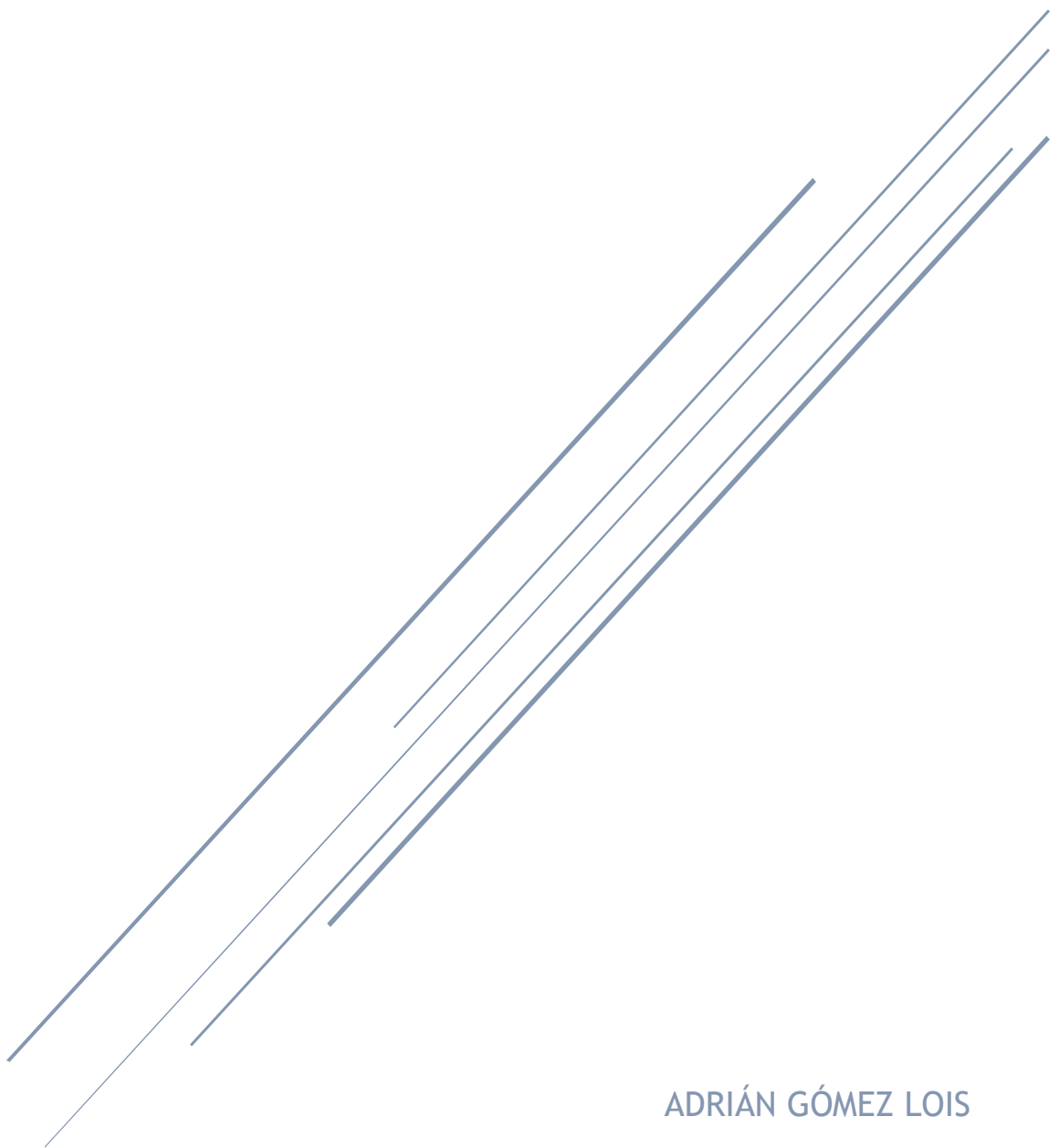


# HAPROXY BALANCEO WEB

DISPONIBILIDADE DE SERVIZO WEB



ADRIÁN GÓMEZ LOIS

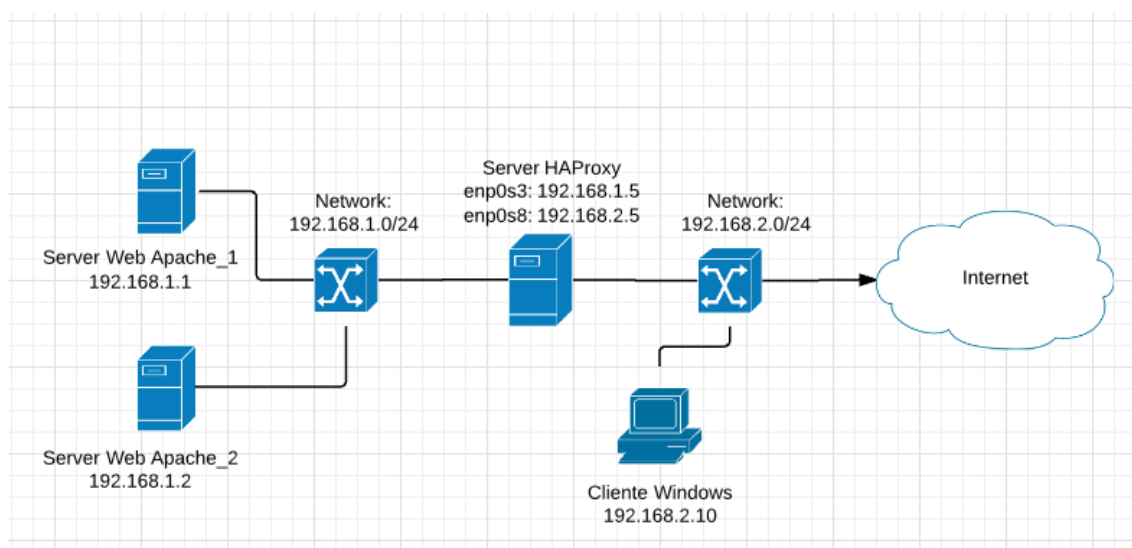
## 1. Balanceo de Apache2 con HAProxy

Nesta tarefa configuraremos un servidor HAProxy o cal fará de balanceador nas peticións Web recibidas ao servidores Apache dispoñibles.

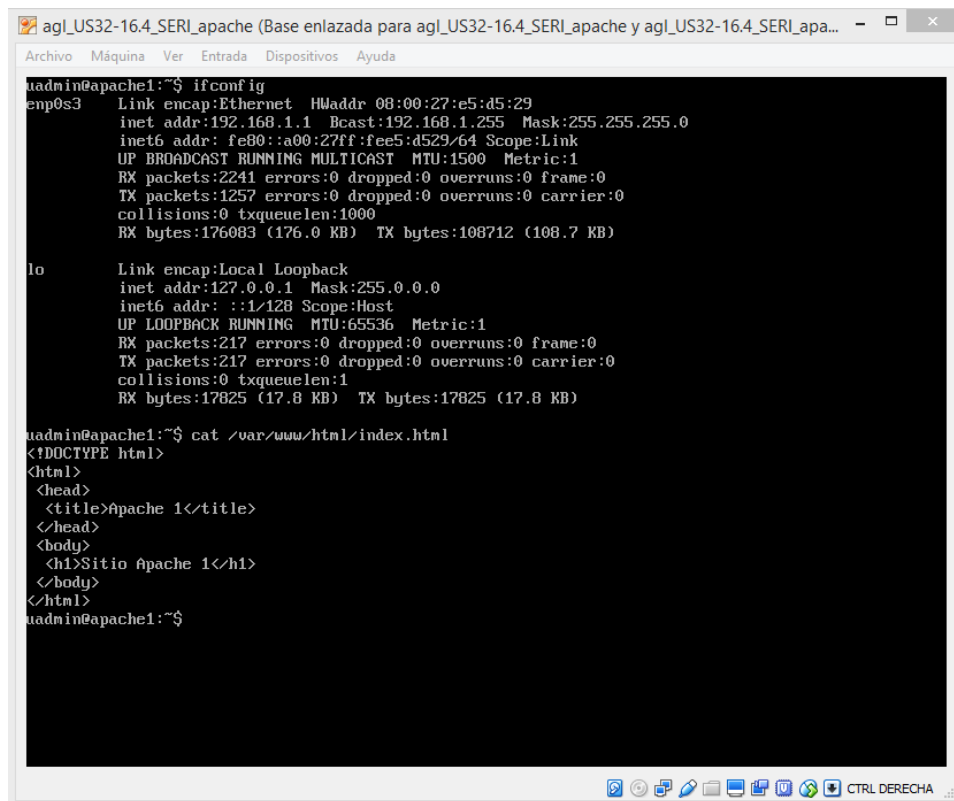
Instalamos e configuramos un sitio para servidor Apache2 o cal responderá as peticións co ServerName establecido de “asir.gal”.

Para tentar simular un caso real, estableceremos dous servidor web Apache exactamente iguais ca diferenza, a modo de exemplo para que se poida ver, de establecer no index.html de cada un un texto significativo hacía cada un dos servidores web.

Traballaremos co seguinte esquema de rede.



## O servidor Apache 1 – 192.168.1.1



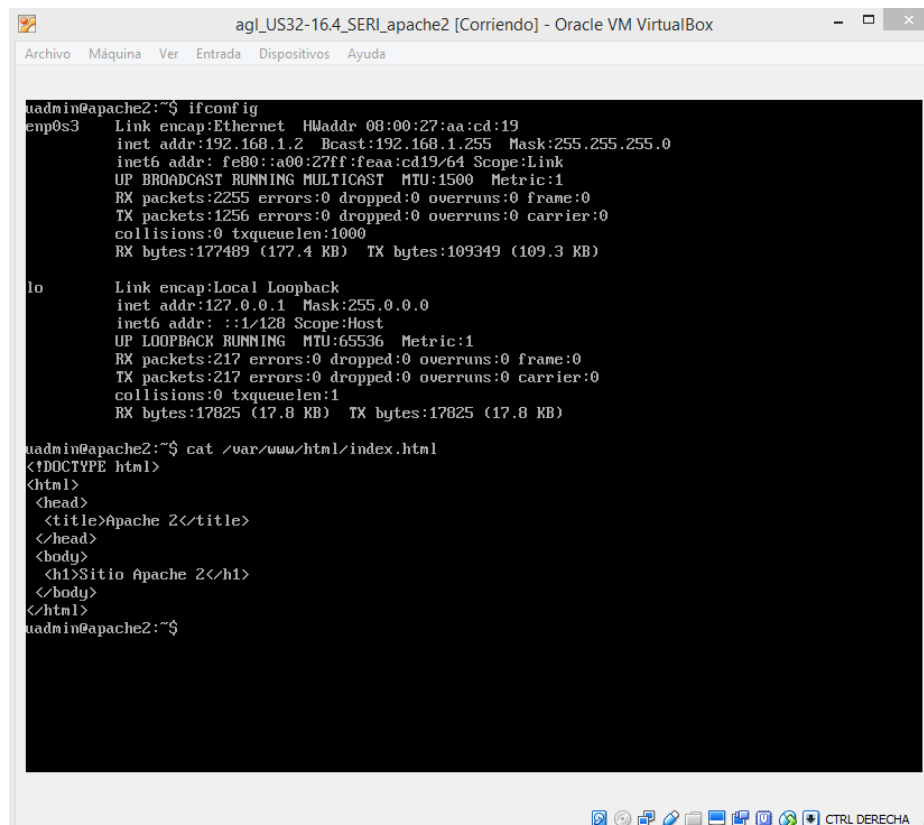
The screenshot shows a terminal window titled "agl\_US32-16.4\_SERI\_apache (Base enlazada para agl\_US32-16.4\_SERI\_apache y agl\_US32-16.4\_SERI\_apache)". The terminal displays the output of the "ifconfig" command for the "emp0s3" interface, showing an IP address of 192.168.1.1. It also shows the output of the "cat /var/www/html/index.html" command, which displays an HTML document with the title "Apache 1" and a heading "Sitio Apache 1".

```
uadmin@apache1:~$ ifconfig
emp0s3  Link encap:Ethernet  HWaddr 08:00:27:e5:d5:29
        inet addr:192.168.1.1  Bcast:192.168.1.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fee5:d529/64  Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:2241 errors:0 dropped:0 overruns:0 frame:0
        TX packets:1257 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:176083 (176.0 KB)  TX bytes:108712 (108.7 KB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128  Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:217 errors:0 dropped:0 overruns:0 frame:0
        TX packets:217 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:17825 (17.8 KB)  TX bytes:17825 (17.8 KB)

uadmin@apache1:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
  <title>Apache 1</title>
</head>
<body>
  <h1>Sitio Apache 1</h1>
</body>
</html>
uadmin@apache1:~$
```

## O servidor Apache 2 – 192.168.1.2



The screenshot shows a terminal window titled "agl\_US32-16.4\_SERI\_apache2 [Corriendo] - Oracle VM VirtualBox". The terminal displays the output of the "ifconfig" command for the "emp0s3" interface, showing an IP address of 192.168.1.2. It also shows the output of the "cat /var/www/html/index.html" command, which displays an HTML document with the title "Apache 2" and a heading "Sitio Apache 2".

```
uadmin@apache2:~$ ifconfig
emp0s3  Link encap:Ethernet  HWaddr 08:00:27:aa:cd:19
        inet addr:192.168.1.2  Bcast:192.168.1.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:feaa:cd19/64  Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:2255 errors:0 dropped:0 overruns:0 frame:0
        TX packets:1256 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:177489 (177.4 KB)  TX bytes:109349 (109.3 KB)

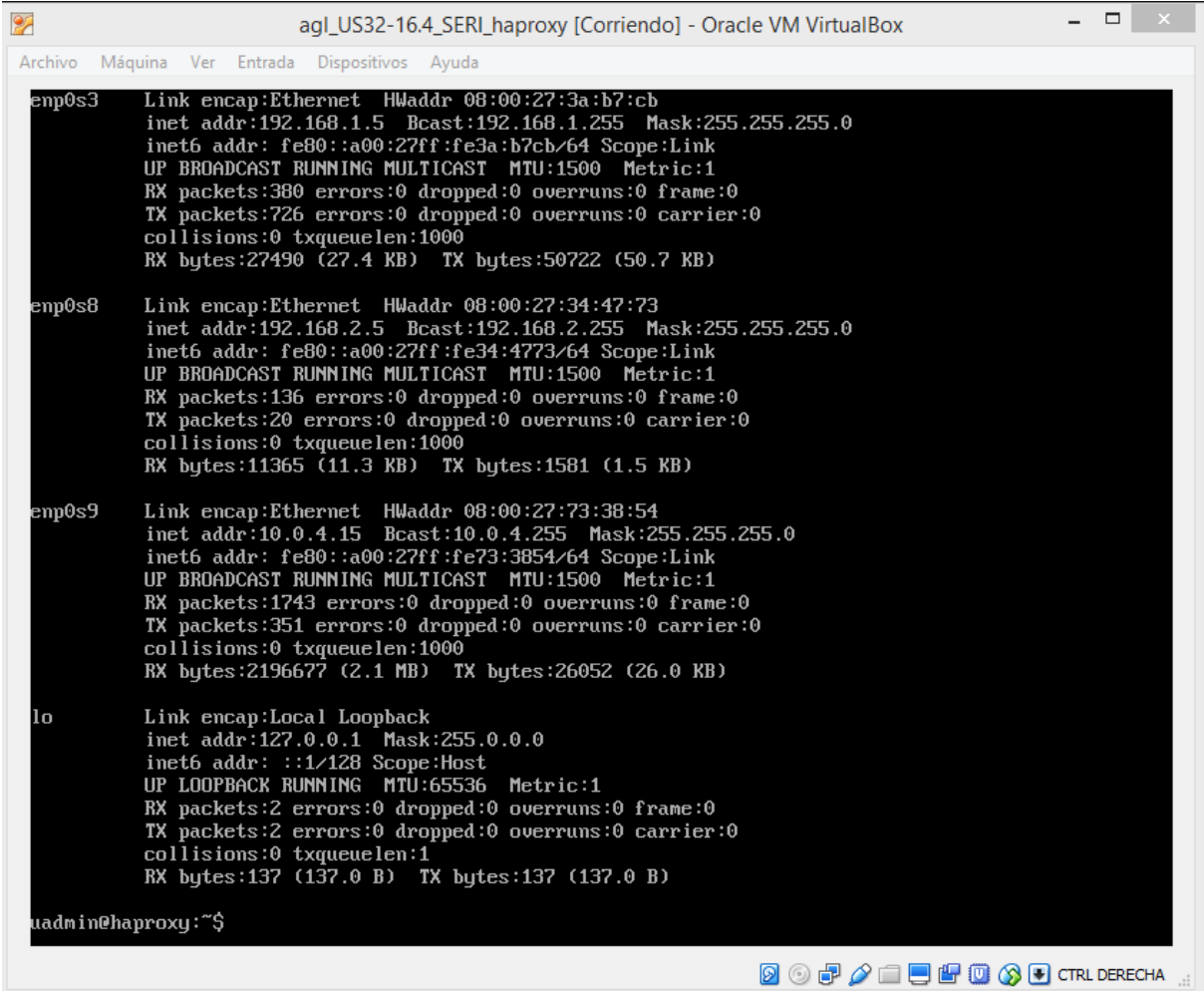
lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128  Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:217 errors:0 dropped:0 overruns:0 frame:0
        TX packets:217 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:17825 (17.8 KB)  TX bytes:17825 (17.8 KB)

uadmin@apache2:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
  <title>Apache 2</title>
</head>
<body>
  <h1>Sitio Apache 2</h1>
</body>
</html>
uadmin@apache2:~$
```

O servidor HAProxy, ten dúas tarxetas en rede interna e outra en modo NAT. Cada unha das internas ten unha dirección IP establecida para cada unha das subredes.

enp0s3 – 192.168.1.5

enp0s8 – 192.168.2.5



```
agl_US32-16.4_SERI_haproxy [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

enp0s3  Link encap:Ethernet  HWaddr 08:00:27:3a:b7:cb
        inet addr:192.168.1.5  Bcast:192.168.1.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe3a:b7cb/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:380 errors:0 dropped:0 overruns:0 frame:0
        TX packets:726 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:27490 (27.4 KB)  TX bytes:50722 (50.7 KB)

enp0s8  Link encap:Ethernet  HWaddr 08:00:27:34:47:73
        inet addr:192.168.2.5  Bcast:192.168.2.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe34:4773/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:136 errors:0 dropped:0 overruns:0 frame:0
        TX packets:20 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:11365 (11.3 KB)  TX bytes:1581 (1.5 KB)

enp0s9  Link encap:Ethernet  HWaddr 08:00:27:73:38:54
        inet addr:10.0.4.15  Bcast:10.0.4.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe73:3854/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:1743 errors:0 dropped:0 overruns:0 frame:0
        TX packets:351 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:2196677 (2.1 MB)  TX bytes:26052 (26.0 KB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:2 errors:0 dropped:0 overruns:0 frame:0
        TX packets:2 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:137 (137.0 B)  TX bytes:137 (137.0 B)

admin@haproxy:~$
```

Unha vez instalado HAProxy configuramos o ficheiro `/etc/haproxy/haproxy.cfg`.

**Na sección defaults:** Sección por defecto que afecta a toda a configuración do servidor HAProxy.  
*option forwardfor*: para engadir a cabeceira X-Forwarded-For para permitir identificar ós servidores internos a IP do cliente real. Pensade que nos logs dos servidores web internos sempre aparecerá a IP do proxy como a IP do equipo que lle solicita un recurso; desta forma podemos saber a IP do equipo cliente real.  
*http-server-close*: permite mellorar o rendemento das conexións ó manterse o http keep-alive (http persistente).

**Na sección do frontend:** definen como se reenvían as solicitudes ós backends.  
*bind 192.168.2.5:50*: define o socket onde se recibirán as peticións dos clientes.  
*acl host\_asir.gal hdr(host) -i asir.gal*: crea unha onde se verifica que o contido da cabeceira http host. Lembrar que nas solicitudes http, a cabeceira Host úsase para indicar o sitio web no que está interesado o cliente.  
*use\_backend sitio\_probas1\_back if host\_asir.gal*: indica que as peticións serán enviadas ó backend chamado sitio\_probas1\_back se é certa a ACL `host_asir.gal`.

**Na sección do backend:** definen un conxunto de servidores que recibirán as solicitudes reenviadas por HAProxy.  
*Balance roundrobin*: indica que os servidores que forma parte do backend estarán balanceados usando o algoritmo RoundRobin.  
*server apache1 192.168.1.1:80 check*: define o equipo porto tcp/80 como membro do backend chamado sitio\_probas1\_back. Ademais, o seu estado será monitorizado por HAProxy.  
*server apache2 192.168.1.2:80 check*: define o equipo porto tcp/80 como membro do backend chamado sitio\_probas1\_back. Ademais, o seu estado será monitorizado por HAProxy.

**Listen stats:** definen o conxunto de regras para a monitorización web do balanceo de HAProxy.  
*bind :6500*: define o porto de escoita para a monitorización de estadísticas web de HAProxy.  
*stats enable*: habilita a monitorización de estadísticas para a súa visualización web.  
*stats auth admin:abc123*: define as credenciais de autenticación para a visualización web da monitorización de HAProxy.  
*stats uri /haproxy\_stats\_seri*: define a url (`http://[ip_servidor_haproxy]/haproxy_stats_seri`) a cal accederemos para visualizar a monitorización do balanceo de HAProxy.

```
GNU nano 2.5.3           Ficheiro: /etc/haproxy/haproxy.cfg

errorfile 504 /etc/haproxy/errors/504.http
retries 3
option forwardfor
option http-server-close

frontend sitio_http
    bind 192.168.2.5:80
    acl host_asir.gal hdr(host) -i asir.gal
    use_backend sitio_probas1_back if host_asir.gal

backend sitio_probas1_back
    balance roundrobin
    server apache1 192.168.1.1:80 check
    server apache2 192.168.1.2:80 check

listen stats
    bind :6500
    #mode http
    #log global
    stats enable
    #stats refresh 10s
    #stats show-node
    stats auth admin:abc123.
    stats uri /haproxy_stats_seri
```

Modificaremos o syslog para gardar os rexistros do noso balanceador. Editamos o arquivo /etc/rsyslog.conf e habilitamos o syslog por UDP, e finalmente reiniciamos o servizo:

`sudo service haproxy restart`

```
GNU nano 2.5.3           Ficheiro: /etc/rsyslog.conf

# /etc/rsyslog.conf      Configuration file for rsyslog.
#
# For more information see
# /usr/share/doc/rsyslog-doc/html/rsyslog_conf.html
#
# Default logging rules can be found in /etc/rsyslog.d/50-default.conf

#####
#### MODULES ####
#####

module(load="imuxsock") # provides support for local system logging
module(load="imklog")   # provides kernel logging support
#module(load="immark")  # provides --MARK-- message capability

# provides UDP syslog reception
module(load="imudp")
input(type="imudp" port="514")
UDPServerAddress 127.0.0.1

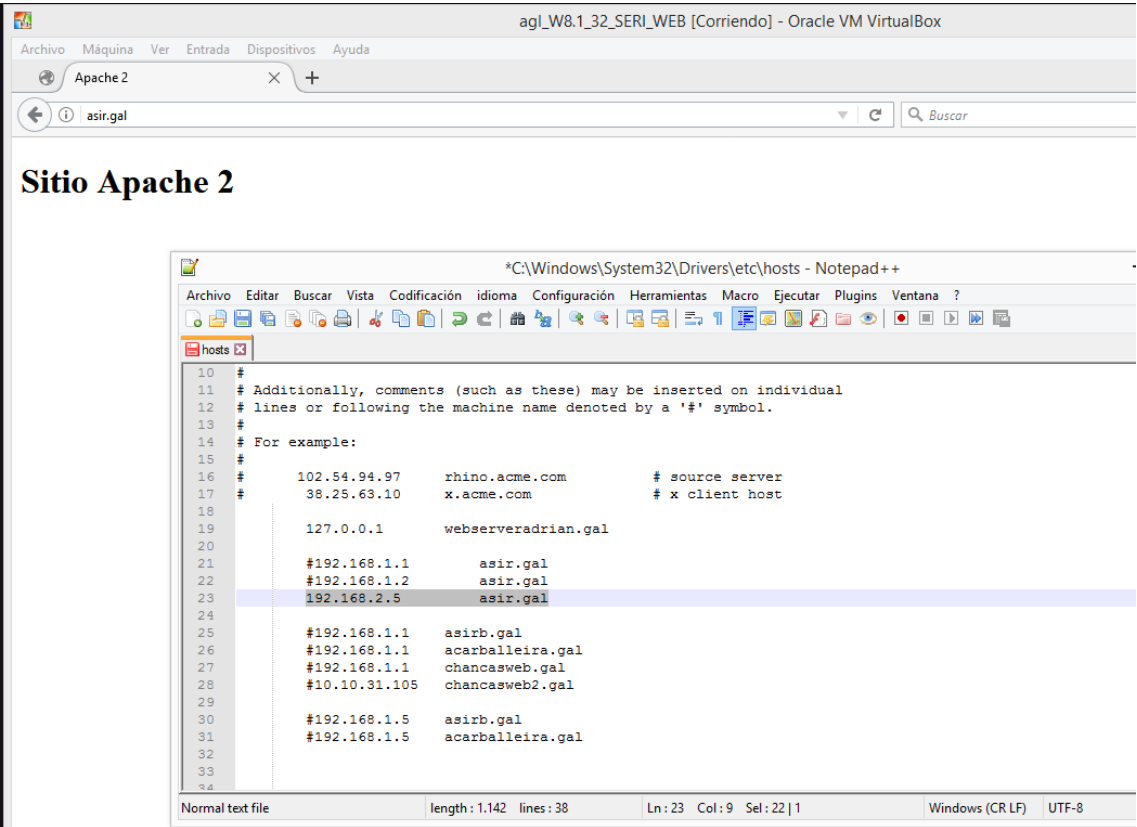
# provides TCP syslog reception
#module(load="imtcp")
#input(type="imtcp" port="514")

# Enable non-kernel facility klog messages
$KLogPermitNonKernelFacility on

#####
#### GLOBAL DIRECTIVES ####
#####

[ Le-las liñas 62 (Advertencia: Non hai permiso de escritura) ]
Obter axuda  Gravar  U-lo?  CortarText  Xustificar  PosicAct  Páxina ant
Saír  Ler Fich  Substituir  RepórTexto  Ortografía  Ir á liña  Páxina seg
```

Configuramos o ficheiro hosts do cliente Windows para que resolva a dirección IP 192.168.2.5 (do servidor HAProxy) a solicitudes de nome “asir.gal”.



No panel web de monitorización do servidor HAProxy podemos ver como efectúan correctamente os balanceos do serivodora apache\_1 e apache\_2.

The screenshot shows the HAProxy web interface for version 1.6.3, released 2015/12/25. The page title is "Statistics Report for pid 1237". Under the "General process information" section, it shows details for pid = 1237 (process #1, nbproc = 1), uptime = 0d 0h05m05s, system limits, maxsock = 4034, maxconn = 2000, maxpipes = 0, current conn = 1, current pipes = 0/0, conn rate = 1/sec, and running tasks: 1/8, idle = 100 %.

Below the general information, there are three tables showing statistics for different components:

#### asir\_http

Queue		Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server												
Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Downtime	Thrtle
Frontend	0	2	-	0	1	2 000	4	-	-	-	-	39 621	36 981	0	0	0	0	0	0	0	0	OPEN	-	-	-	-	-	-	-

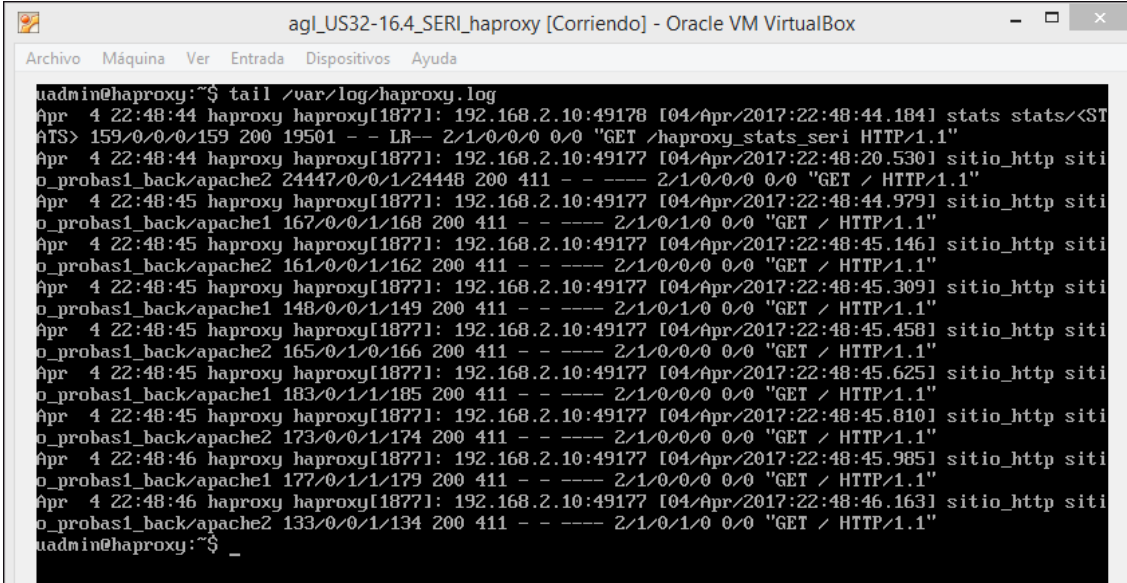
#### asir\_probant1\_back

Queue		Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server												
Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Downtime	Thrtle
apache1	0	0	-	0	12	0	1	-	44	44	22m40s	19 253	18 072	0	0	0	0	0	0	0	34m17s UP	L4OK in 0ms	1	Y	-	1	1	40s	-
apache2	0	0	-	0	11	0	1	-	45	45	22m40s	19 729	18 483	0	0	0	0	0	0	0	35m6s UP	L4OK in 0ms	1	Y	-	0	0	0s	-
Backend	0	0	-	0	23	0	1	200	89	89	22m40s	38 982	36 555	0	0	0	0	0	0	0	35m6s UP	-	2	2	0	-	0	0s	-

#### stats

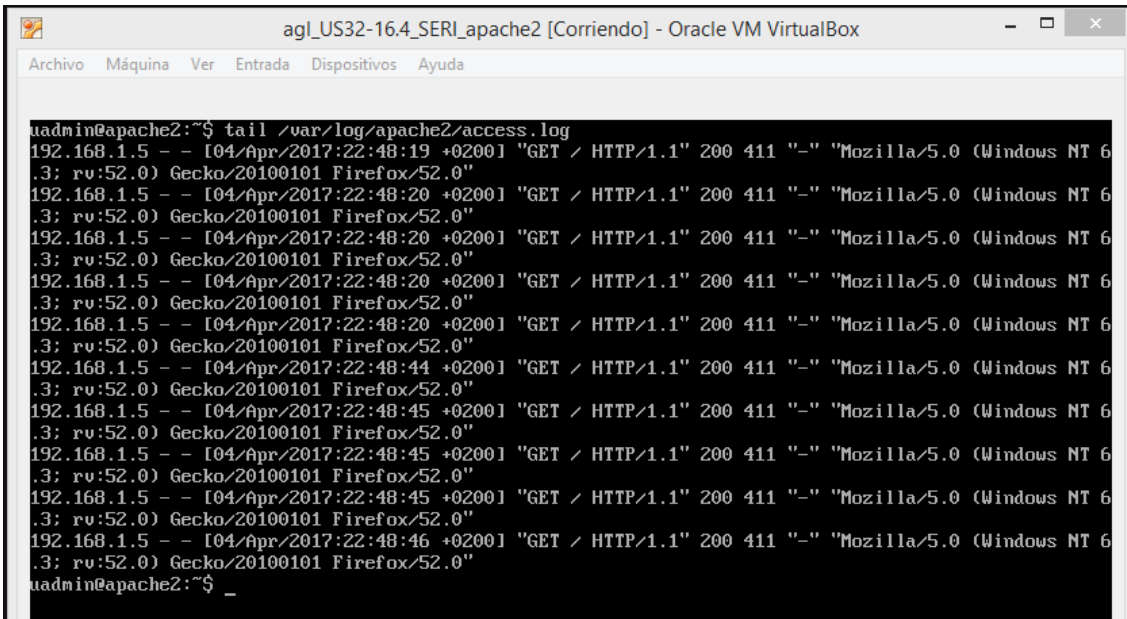
Queue		Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server													
Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Downtime	Thrtle	
Frontend	1	1	-	1	1	2 000	5	-	-	-	-	5 272	215 227	0	0	0	0	0	0	0	0	OPEN	-	-	-	-	-	-	-	
Backend	0	0	-	0	1	0	1	200	1	0	0s	5 272	215 227	0	0	0	1	0	0	0	0	35m6s UP	-	0	0	0	-	0	0s	-

No log do servidor de HAProxy (taul /var/log/haproxy) podemos ver as solicitudes feitas polo cliente dende o frontend hacia os servidores apache configurados no backend.



```
admin@haproxy:~$ tail /var/log/haproxy.log
Apr  4 22:48:44 haproxy haproxy[18771]: 192.168.2.10:49178 [04/Apr/2017:22:48:44.184] stats stats/<ST
ATS> 159/0/0/0/159 200 19501 - - LR-- 2/1/0/0/0 0/0 "GET /haproxy_stats_seri HTTP/1.1"
Apr  4 22:48:44 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:20.530] sitio_http siti
o_probas1_back/apache2 24447/0/0/1/24448 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:44.979] sitio_http siti
o_probas1_back/apache1 167/0/0/1/168 200 411 - - ---- 2/1/0/1/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.146] sitio_http siti
o_probas1_back/apache2 161/0/0/1/162 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.309] sitio_http siti
o_probas1_back/apache1 148/0/0/1/149 200 411 - - ---- 2/1/0/1/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.458] sitio_http siti
o_probas1_back/apache2 165/0/0/1/166 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.625] sitio_http siti
o_probas1_back/apache1 183/0/0/1/185 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:45 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.810] sitio_http siti
o_probas1_back/apache2 173/0/0/1/174 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:46 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:45.985] sitio_http siti
o_probas1_back/apache1 177/0/0/1/179 200 411 - - ---- 2/1/0/0/0 0/0 "GET / HTTP/1.1"
Apr  4 22:48:46 haproxy haproxy[18771]: 192.168.2.10:49177 [04/Apr/2017:22:48:46.163] sitio_http siti
o_probas1_back/apache2 133/0/0/1/134 200 411 - - ---- 2/1/0/1/0 0/0 "GET / HTTP/1.1"
admin@haproxy:~$ _
```

Vemos que nun dos servidores web apache (servidor: apache2) a dirección IP real do cliente e a do servidor Haproxy. E non a do cliente, esto pódese solucionar da seguinte habilitando un módulo.



```
admin@apache2:~$ tail /var/log/apache2/access.log
192.168.1.5 - - [04/Apr/2017:22:48:19 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:20 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:20 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:20 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:20 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:20 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:44 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:45 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:45 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:45 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:22:48:46 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
admin@apache2:~$ _
```



Para poder ver a IP real do cliente, habilitamos o módulo “remoteip”. (Previamente habería que ter configurado no ficheiro haproxy.cfg do servidor HAProxy a opción de “option forwardfor”).

`a2enmod remoteip`

Reiniciamos o servizo de apache.

Entramos no módulo “/etc/apache/mods-enabled/remoteip.load” e engadimos:

`RemoteIPHeader X-Forwarded-For`

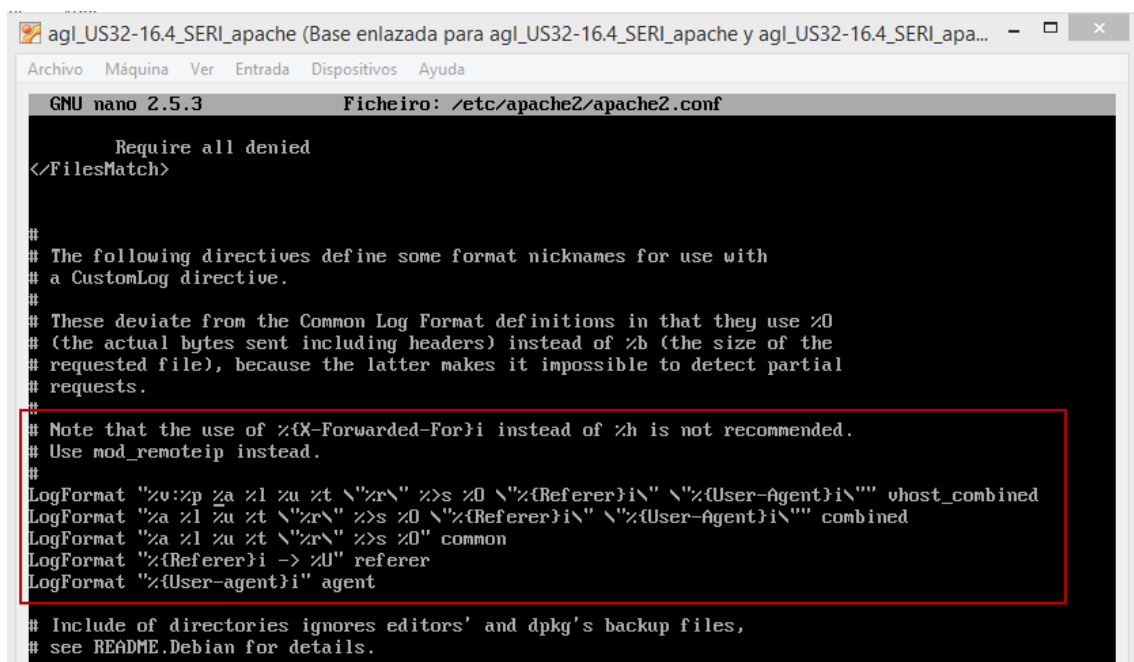
`RemoteIPInternalProxy 192.168.1.5`

Donde 192.168.1.5 sería a IP do servidor HAProxy na subrede que conecta co servidor apache en cuestión.



```
agI_US32-16.4_SERI_apache (Base enlazada para agI_US32-16.4_SERI_apache y agI_US32-16.4_SERI_ap... - □ ×
GNU nano 2.5.3      Ficheiro: /etc/apache2/mods-enabled/remoteip.load
LoadModule remoteip_module /usr/lib/apache2/modules/mod_remoteip.so
RemoteIPHeader X-Forwarded-For
RemoteIPInternalProxy 192.168.1.5
```

Modificamos o formato dos logs “LogFormat” do ficheiro principal de apache /etc/apache2/apache2.conf, cambiando as variables %h por %a (son un total de tres).

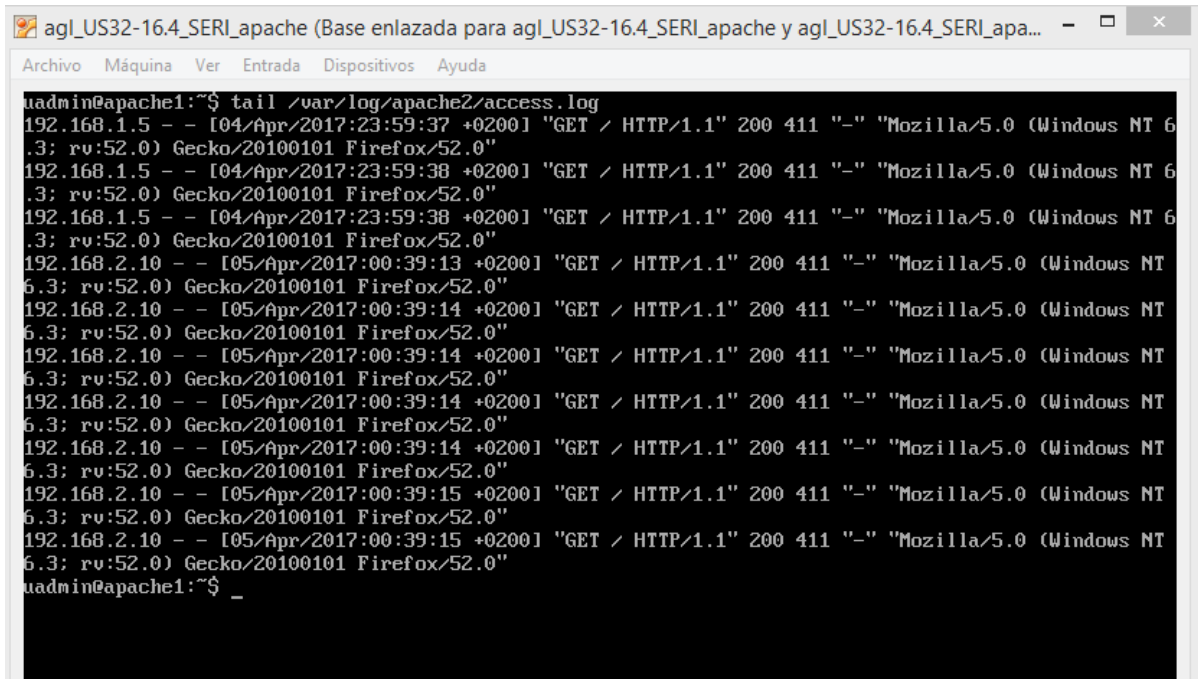


```
agI_US32-16.4_SERI_apache (Base enlazada para agI_US32-16.4_SERI_apache y agI_US32-16.4_SERI_ap... - □ ×
GNU nano 2.5.3      Ficheiro: /etc/apache2/apache2.conf
Require all denied
</FilesMatch>

#
# The following directives define some format nicknames for use with
# a CustomLog directive.
#
# These deviate from the Common Log Format definitions in that they use %D
# (the actual bytes sent including headers) instead of %b (the size of the
# requested file), because the latter makes it impossible to detect partial
# requests.
#
# Note that the use of %{X-Forwarded-For}i instead of %h is not recommended.
# Use mod_remoteip instead.
#
LogFormat "%v:%p %a %l %u %t \"%r\"> %> %D \"%{Referer}i\" \"%{User-Agent}i\"> vhost_combined
LogFormat "%a %l %u %t \"%r\"> %> %D \"%{Referer}i\" \"%{User-Agent}i\"> combined
LogFormat "%a %l %u %t \"%r\"> %> %D" common
LogFormat "%{Referer}i -> %U" referer
LogFormat "%{User-agent}i" agent

# Include of directories ignores editors' and dpkg's backup files,
# see README.Debian for details.
```

Agora podemos comprobar como da 192.168.1.5 (servidor HAProxy) que hai o principio do log e despois de aplicar estos cambiamos e volver comprobar vemos como xa rexistra a dirección IP real do cliente a cal sería a 192.168.2.10 (da outra subrede).



```
uadmin@apache1:~$ tail /var/log/apache2/access.log
192.168.1.5 - - [04/Apr/2017:23:59:37 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:23:59:38 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.1.5 - - [04/Apr/2017:23:59:38 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT 6
.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:13 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:14 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:14 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:14 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:14 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:15 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
192.168.2.10 - - [05/Apr/2017:00:39:15 +0200] "GET / HTTP/1.1" 200 411 "-" "Mozilla/5.0 (Windows NT
6.3; rv:52.0) Gecko/20100101 Firefox/52.0"
uadmin@apache1:~$ _
```