

## Anonymity of Proxy

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The exchange of information in Internet is made by the "client - server" model. A client sends a request (what files he needs) and a server sends a reply (required files). For close cooperation (full understanding) between a client and a server the client sends additional information about itself: a version and a name of an operating system, configuration of a browser (including its name and version) etc. This information can be necessary for the server in order to know which web-page should be given (open) to the client. There are different variants of web-pages for different configurations of browsers. However, as long as web-pages do not usually depend on browsers, it makes sense to hide this information from the web-server.

What your browser transmits to a web-server:

a name and a version of an operating system

a name and a version of a browser

configuration of a browser (display resolution, color depth, java / javascript support, ...)

IP-address of a client

Other information

The most important part of such information (and absolutely needless for a web-server) is information about IP-address. Using your IP it is possible to know about you the following:

a country where you are from

a city

your provider's name and e-mail

your physical address

Information, transmitted by a client to a server is available (accessible) for a server as environment variables. Every information unit is a value of some variable. If any information unit is not transmitted, then corresponding variable will be empty (its value will be undetermined).

These are some environment variables:

REMOTE\_ADDR ? IP address of a client

HTTP\_VIA ? if it is not empty, then a proxy is used. Value is an address (or several addresses) of a proxy server, this variable is added by a proxy server itself if you use one.

HTTP\_X\_FORWARDED\_FOR ? if it is not empty, then a proxy is used. Value is a real IP address of a client (your IP), this variable is also added by a proxy server if you use one.

HTTP\_ACCEPT\_LANGUAGE ? what language is used in browser (what language a page should be displayed in)

HTTP\_USER\_AGENT ? so called "a user's agent". For all browsers this is Mozilla. Furthermore, browser's name and version (e.g. MSIE 5.5) and an operating system (e.g. Windows 98) is also mentioned here.

HTTP\_HOST ? is a web server's name

This is a small part of environment variables. In fact there are much more of them (DOCUMENT\_ROOT, HTTP\_ACCEPT\_ENCODING, HTTP\_CACHE\_CONTROL, HTTP\_CONNECTION, SERVER\_ADDR, SERVER\_SOFTWARE, ...). Their quantity can depend on settings of both a server and a client.

These are examples of variable values:

```
REMOTE_ADDR = 194.85.1.1
HTTP_ACCEPT_LANGUAGE = ru
HTTP_USER_AGENT = Mozilla/4.0 (compatible; MSIE 5.0; Windows 98)
HTTP_HOST = www.webserver.ru
HTTP_VIA = 194.85.1.1 (Squid/2.4.STABLE7)
HTTP_X_FORWARDED_FOR = 194.115.5.5
```

Anonymity at work in Internet is determined by what environment variables "hide" from a web-server.

If a proxy server is not used, then environment variables look in the following way:

```
REMOTE_ADDR = your IP
HTTP_VIA = not determined
HTTP_X_FORWARDED_FOR = not determined
```

According to how environment variables "hided" by proxy servers, there are several types of proxies  
Transparent Proxies

They do not hide information about your IP address:

```
REMOTE_ADDR = proxy IP
HTTP_VIA = proxy IP
HTTP_X_FORWARDED_FOR = your IP
```

The function of such proxy servers is not the improvement of your anonymity in Internet. Their purpose is information caching, organization of joint access to Internet of several computers, etc.

Anonymous Proxies

All proxy servers, that hide a client's IP address in any way are called anonymous proxies

Simple Anonymous Proxies

These proxy servers do not hide a fact that a proxy is used, however they replace your IP with its own:

```
REMOTE_ADDR = proxy IP
HTTP_VIA = proxy IP
HTTP_X_FORWARDED_FOR = proxy IP
```

These proxies are the most widespread among other anonymous proxy servers.

Distorting Proxies

As well as simple anonymous proxy servers these proxies do not hide the fact that a proxy server is used. However a client's IP address (your IP address) is replaced with another (arbitrary, random) IP:

```
REMOTE_ADDR = proxy IP
HTTP_VIA = proxy IP
HTTP_X_FORWARDED_FOR = random IP address
```

High Anonymity Proxies

These proxy servers are also called "high anonymity proxy". In contrast to other types of anonymity proxy servers they hide a fact of using a proxy:

REMOTE\_ADDR = proxy IP  
HTTP\_VIA = not determined  
HTTP\_X\_FORWARDED\_FOR = not determined

That means that values of variables are the same as if proxy is not used, with the exception of one very important thing ? proxy IP is used instead of your IP address.

Summary

Depending on purposes there are transparent and anonymity proxies. However, remember, using proxy servers you hide only your IP from a web-server, but other information (about browser configuration) is accessible!