

Hexago Gateway6 Client Software FAQ

Version 0v4

Author: Karl Auer, IPv6Now Pty Ltd

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1 Who or what is IPv6 Now?

IPv6Now Pty Ltd is an Australian company that believes the time for IPv6 is now. We offer all you need to get started with IPv6, whether you are a home user or a transnational company - everything from strategic advice down to the nuts and bolts.

IPv6 Now Pty Ltd
PO Box 152
Civic Square ACT 2608
Australia

Telephone: +61 2 6161 6607

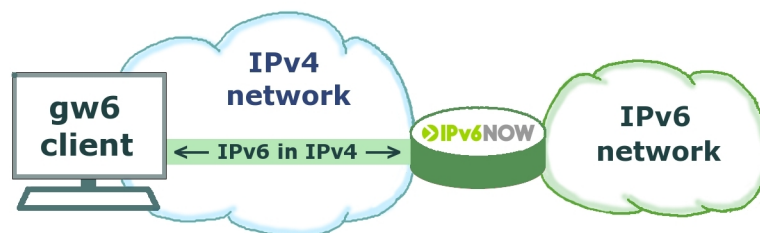
Facsimile: +61 2 6262 9938

Email: [info at ipv6now com au](mailto:info@ipv6now.com.au)

Web: www.ipv6now.com.au

2 How does tunnelling work?

You run client software on your computer. The client software uses your normal IPv4 Internet connection to connect to the IPv6Now tunnel broker. The client and the broker negotiate, and set up a tunnel between your computer and the broker. The tunnel carries the IPv6 protocol, and the end result is that your computer is on the Internet with an IPv6 address.



This is by far the easiest way to get IPv6 connectivity. If you have access to the IPv4 Internet, the client can connect you to the IPv6 Internet. If you have an account with an IPv6 prefix included, every IPv6-capable computer on your local network can connect as well. From anyone's network, from anywhere in the world.

You may configure your client to request only a single IPv6 address. Only the machine the client is running on will receive an address, and only that machine will be able to see the IPv6 Internet.

Alternatively, you may configure your client to request a prefix. In that case the client sets up the tunnel and requests a prefix from the broker. It will only receive one if the account on the broker has been configured to issue a prefix; assuming this is the case, the broker delivers a prefix, and the client starts a route advertiser on the machine it is running on. Any IPv6-enabled hosts on your local network will be able to acquire IPv6 addresses with the delivered prefix. We call this a "prefixed tunnel".

3 What operating systems are supported?

The client software runs on FreeBSD, OpenBSD, NetBSD, Darwin, Solaris, Linux and OpenWRT. There are 32-bit and 64-bit Windows versions.

Unfortunately, NAT traversal is not yet supported in NetBSD, Solaris and OpenBSD. If using the client on these operating systems you need to be directly connected to the Internet, not behind a NAT device.

4 Where can I get the software?

Depending on what operating system you use, you may find that you can simply install a pre-packaged version of the software using your system's package manager. Some distributions still contain the older tspc client software. This will work, but has limitations. There is really no good reason not to use the latest version of gw6c.

If your operating system does not already contain the gw6c package, you can obtain it from the go6 site: www.go6.net. Click "Applications", then "Downloads".

5 How do I install/configure the software for Linux?

See the Linux HowTo.

6 How do I install/configure the software for Windows?

See the Windows HowTo.

7 How do I install/configure the software for other operating systems?

See the Linux Howto as a guide (it will not be exactly applicable, but will be very close).

Instead of using "target=linux" use "target=xxx", where "xxx" is one of "freebsd", "linux", "netbsd", "darwin", "solaris", "openbsd" or "openwrt".

8 What about security?

When a tunnel is up, your IPv6 traffic is being tunnelled through any IPv4 firewall or packet filtering devices you might have on your network. Those devices are almost certainly inspecting and checking only your IPv4 traffic; your IPv6 traffic is bypassing them.

You should take appropriate steps to protect the computer running the Gateway6 client and any other IPv6-enabled computers on your network.

How to do this is beyond the scope of this document, but at a minimum you should ensure that the client host and any other IPv6-capable hosts on your network are running local firewalling or packet-filtering software, and that services you do not use on those machines are switched off.

9 What sites out there can I talk to?

With the tunnel up, you should be able to access IPv6-only sites on the Internet. Here are a couple to whet your appetite:

IPv6 Now's site will say on the home page whether you have arrived via IPv4.

The famous dancing turtle: www.kame.net

Google's test offering: ipv6.google.com

Google for "IPv6-only web sites" and you will find many lists, compiled by various people, of IPv6-only resources.

10 Can I browse to a site if it doesn't have a DNS entry?

Yes! Just as with IPv4, you can specify the site's IPv6 address to your browser. This is helpful if the site doesn't have a DNS entry, or if for some reason you can't resolve its DNS entry.

You can specify an IPv6 address to your browser by enclosing the IPv6 address in square brackets.

To get to www.kame.net via it's IPv6 address for example:

```
http://[2001:200:0:8002:203:47ff:fea5:3085]
```

11 I got a different website than I expected! Why?

Many web hosting sites use named virtual hosts, where many websites share the same IP address. The webserver works out which particular site you want by looking at the name you requested.

If you connect to such a site using an IP address rather than a domain name, the server has no way of working out what site you wanted to see of the many that may share the one address. Such sites may respond with their primary or default website rather than the one you wanted. Some may respond with "No such page".

Another possibility is that an IPv6 address exists for a website that is actually only accessible via IPv4. In this case you may get a "connection refused" message.

12 Why do I see only the IPv4 version of an IPv6-accessible site?

Many web browsers cache DNS results; all browsers cache site data. If you have viewed a site using IPv4, then start your tunnel and try to browse the same site again, the browser may show you its cached version, or it may use its cached DNS results and go get the IPv4 version again.

Depending on the browser, clearing the cache or doing a forced reload may solve the problem; with some browsers you may have to restart the browser.

13 What else can I do with this stuff?

That's a HUGE topic, and this answer barely scratches the surface! As described in this document and in the HowTo documents, the client software is used in its simplest form either to get one host connected to the IPv6 Internet, or to get one subnet

connected to the Internet using basic defaults.

You can do a LOT more:

- The client can set up tunnels to other hosts in the local network (look at the `proxy_client` parameter in the client configuration).
- By adding route control to the template scripts, multiple tunnels can be open at once.
- With further modifications to the scripts, IPv6 firewalling or packet filtering can be integrated, or route advertising can be precisely controlled.

The possibilities are endless. If you have particular requirements and would like professional assistance, IPv6Now can help - call us for more information.

14 *I've got problems – how can I troubleshoot?*

If you have problems, the first thing to do is turn on logging - lots of it!

Windows users can use the “Log” tab to set this up, others should edit the configuration file and set the various logging options as desired.

The simplest way is to set `log_file` to 3 and `log_filename` to (say) “/tmp/gw6c.log”. When everything is working, set the logging options back to something less verbose.

Remember that you will need to restart the client before configuration changes will take effect.

15 *The connection times out!*

You need to have a working IPv4 connection to the Internet.

Your IPv4 Internet connection needs to allow the tunnel setup protocol through (and back!) By default, the tunnel setup protocol uses port 3653.

Your IPv4 Internet connection needs to allow the tunnel protocol itself through (and back!) This is protocol 41. Some firewalls do block this protocol (see “What about security?” to see why).

If you are behind a NAT device (almost certainly the case if you are at home, for example) you must use the “v6udp4” or “v6anyv4” tunnel mode (the `tunnel_mode` configuration item). If you don't know whether you are behind a NAT device, use “v6anyv4” and the client will work it out.

If you are behind a NAT device and are using NetBSD, OpenBSD, or Solaris, it won't work. NAT traversal is not yet supported for these operating systems.

16 *I get some kind of authentication failure.*

Make sure (really, really sure) that you are using the correct user name and password. Remember that both the username and the password are case sensitive - upper case (capital) letters and lower case letters are NOT the same.

Make sure that you are talking to the correct tunnel broker for the user name and password you are using. For IPv6Now, the “server” configuration item must be set to “broker.ipv6now.com.au”.

Make sure that the authentication method (the “auth_method” configuration item) is set to one the broker accepts. For IPv6Now, set it to “passdss-3des-1”.

17 (Non-Windows) The client runs, but stops and I don't have a tunnel.

You *must* run the client as the root user. This problem will be very obvious in the last few lines of the log.

Another possibility is that your operating system does not have the appropriate tunnel interface(s) configured into it. Such problems will also usually be very obvious in the log. For example, Linux requires the “tun” interface to be available. Depending on your operating system, you may need to recompile the kernel or load the appropriate module, operations which are beyond the scope of this document.

Most modern operating systems and recent distributions thereof have the required interfaces built in already.

See also “I'm getting a prefix, but it's not being advertised!”

18 I'm requesting a prefix, but I'm not getting one.

Is the account you are using set up to send you a prefix? Check with IPv6Now if you are unsure.

Problems with the prefix length are usually very obvious in the log.

If you are using Windows, did we mention that you need to click “Apply” after you make changes?

19 I'm getting a different prefix length to what I requested!

You will get the prefix length that your broker account is configured for, regardless of what you request.

IPv6Now will generally send a /64 prefix unless other arrangements have been made.

Problems with the prefix length are usually very obvious in the log.

If you are using Windows, did we mention that you need to click “Apply” after you make changes?

20 I'm getting a prefix, but it's not being advertised!

Problems with route advertising usually look like this: The client sets up a tunnel, everything looks fine, then the tunnel client terminates for no apparent reason.

The client does route advertising by starting an external route advertiser after setting up the tunnel. If it can't carry out this step, it will terminate - but only *after* it has reported that all is well with the tunnel!

The route advertiser is not part of the client software distribution, and may have to be installed separately. For example, under Linux it is called “radvd”.

Problems with the route advertiser are usually very obvious in the client log. You may also wish to look at the details logged by the route advertiser itself - read the documentation on your route advertiser to find out where its log file is and how to configure it.

Check that you have specified the correct interface for route advertisements.

Check that the interface you specified is present and running properly.

21 Why do the IPv6 addresses on my other hosts hang around?

If you have other machines on your network that have acquired addresses from your tunnel client host with your requested prefix, they will keep those addresses even if the tunnel has gone away. This is normal. The addresses will “expire” eventually, or you can remove them manually.

You can edit the template script to start the route advertiser with different options if you wish; doing so is beyond the scope of this document, however.

22 I'm running the client from a script, and it just hangs.

There is a small “gotcha” with the passdss-3des-1 authentication method: The first time through, it will ask you to confirm that you want to connect to the (hitherto) “unknown” broker. If you run the client from a script and redirect the output, you will never see the prompt, and the client will wait patiently forever.

The same thing may happen if you set up an icon or similar launcher in your window manager.

If the IPv6Now broker changes its key, the same thing will happen the next time you try to connect. Rest assured IPv6Now will advise all customers well in advance of this happening!

This only applies to non-Windows systems - in the Windows version of the client, this security measure is turned off.

The simplest solution is to run the client manually the first time, so you can see the prompt and answer “yes”. Note that on multi-user operating systems you will have to do this once for each user that uses the client.

Alternatively, see the Linux HowTo for a more permanent solution.

23 I'm running Windows XP with SP3!

Yes, we can see how that would be a problem ;-)

But seriously, SP3 did introduce some client incompatibilities. If you are using XP/SP3, we suggest you obtain the version 6 beta and try that. See “Where can I get the software?”

24 I'm using GCC 4.3 and getting compile errors!

If you are running a very recent Linux and/or using GCC 4.3+, you may see compile errors, with things like strcmp() not resolving in some files.

For each file with these problems, add this line below the other header includes:

```
#include <cstring>
```

For those files which still do not compile, add this line also:

```
#include <stdlib.h>
```

25 What DNS entries will be made for me?

When you connect to the IPv6Now broker, a DNS entry will be made for the name “xxx.tunnels.ipv6now.com.au”, where “xxx” is your username. This is your “client tunnel endpoint name”. The name will resolve to the IPv6 address allocated to your end of the tunnel (your “client tunnel endpoint address”).

Also, a reverse entry will be made for your client tunnel endpoint address, which will resolve back to your client tunnel endpoint name.

If you received a prefix from the broker, and specified a DNS server in your client configuration, the broker will attempt to delegate your prefix to the specified DNS nameserver.

26 How can I see my DNS entries?

Assuming your username is “fred”, your client tunnel endpoint name will be “fred.tunnels.ipv6now.com.au”. You can look it up with dig or nslookup:

```
dig fred.tunnels.ipv6now.com.au AAAA
nslookup -type=AAAA fred.tunnels.ipv6now.com.au
```

This will return your client tunnel endpoint address.

Assuming your client tunnel endpoint address is 2406:a000::6:4, you can reverse resolve that back to your client tunnel endpoint name, also using dig or nslookup:

```
dig -x 2406:a000::6:4
nslookup 2406:a000::6:4
```

27 Why aren't my endpoint DNS entries visible?

Make sure you are looking up the correct entries. In particular remember that you must request an AAAA record, not an A record when looking up your client tunnel endpoint name.

If you are definitely checking the correct name/address, then just wait a few minutes before trying again. If your DNS entries are not there in three or four minutes, try the other suggestions here.

Check that your tunnel is actually up :-)

Try dropping and reconnecting the tunnel.

28 Why hasn't my prefix been delegated?

Check that you definitely specified the correct nameserver(s) in your client configuration.

Check that you used the right format to specify the nameservers in your client configuration. For one nameserver it looks like this:

```
dns_server=ns1.mydomain
```

Or use a colon to delimit more than one nameserver name:

```
dns_server=ns1.mydomain:ns2.mydomain
```