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goIPv6 FAQ

goIPv6 Account

I've applied for a goIPv6 account and received my password via email but I cannot log into my account. What should I do?

Please make sure your Internet browser is javascript enabled. Also, check your keyboard 'CapsLock' is not 'ON' when you enter the password. If the problem still exists, please send email to info@goipv6.hk along with your account name and your email.

I would like to change my current password. What should I do?

Please log into your account and click 'Change Password' in the menu. You are required to provide your current and new password to confirm the change.

I forgot my account password. Is there a way to reset my password?

In the main page, you can click 'Forget Password' and you are required to provide your account name and registered email address. The confirmation email with reset password will be sent to this email address.

How can I change my account email address?

You can click the 'View/Modify Account & Tunnel Information' and then change the 'Contact Email' field. The verification email will be sent to your new email address. You are required to click the verification link in the email before the new email address to take effect.

goIPv6 Tunnel

I've tried to create a tunnel but did not succeed. Is there a basic guideline on how to set up a tunnel?

1. Visit our www.goipv6.hk site and log in.
2. Once you log into the site, click "Create Tunnel" and provide your Client IPv4 endpoint address and choose a preferable tunnel server location. (Note: Your Client IPv4 endpoint address should be displayed on the tunnel creation page)
3. After you successfully create a tunnel, visit your account details page and choose your OS type to get example configuration commands.
4. Use the commands to configure your machine. Please remember, you must have 'administrator' privilege to configure your machine.
5. Once you configure your machine, please browse sites like <http://ipv6.google.com> or <http://kame.net> to test your IPv6 connectivity.

*Two important notes:

1. Your Client endpoint IPv4 and v6 addresses must be reachable via ICMP (Internet Control Message Protocol) for IPv4 and v6.
2. If you are using a NAT (Network Address Translation) appliance (such as a wifi router), please make sure it allows and forwards protocol 41.

What is Protocol 41?

Protocol 41 is one of the Internet Protocol numbers. Within the IPv4 header, the IPv4 Protocol field is set to 41 to indicate an encapsulated IPv6 packet.

What is an Client IPv4 endpoint address?

An Client IPv4 endpoint address is also known as a public IPv4 address. Your Client IPv4 endpoint address should be displayed on the tunnel creation page. You may also visit a site like <http://whatismyip.com> to confirm the address.

How can I change my client IPv4 address after creating the tunnel?

You can delete the existing tunnel with old IPv4 address and recreate the new tunnel with new IPv4 address so that a new block of IPv6 record can be assigned.

While setting up a tunnel, I received an error saying "IPv4 endpoint is unreachable or unstable." What's wrong?

In order to create a goIPv6 tunnel, your Client IPv4 endpoint must be reachable. Please go over your firewall settings and make sure ICMP is allowed.

I have a router that doesn't support protocol 41. Is there any other way to set up a tunnel?

If possible, get a new router that supports (allows and forwards) protocol 41. Alternately, you can either put the host in DMZ of the firewall and secure it as best as you can, or bypass your router to set up a tunnel.

Why can I not connect to IRC?

Due to a high amount of abuse, we have to filter IRC access by default on new tunnels.

I can't send email via IPv6. What's wrong?

Due to a high and persistent amount of abuse, we had to filter outgoing SMTP (tcp/25) connections by default. If you are not providing email service yourself, you should be able to use port 587 instead to your provider's email server.

What kind of IPv6 to v4 tunnel does goIPv6 support?

goIPv6 uses 6in4 tunneling. It encapsulates IPv6 packets within IPv4 link in which Tunnel endpoints are explicitly configured.

The 6in4 traffic is sent over the IPv4 Internet inside IPv4 packets whose IPv4 headers have the IPv4 protocol field set to 41. This protocol number is specifically designated for *IPv6 encapsulation*. In 6in4, the IPv4 packet header is immediately followed by the IPv6 packet being carried.

Does goIPv6 support all Internet traffic on IPv6?

goIPv6 current supports all Internet traffic on the tunnels. But goIPv6 also reserves the right to block or drop services in case of abuse or illegal use. Please see Term of Service for more details

Is there any bandwidth limitation for goIPv6 services?

Yes, since there are only a limited amount of bandwidth shared by all customers, there is currently a 1Mbps limit set per tunnel.

How long can the tunnel be kept? Is there any idle time out?

Due to limited resources and fairness to other users, if the tunnel is created but not used, ie. not brought up or brought up but no traffic for a week, the resource for that tunnel will be suspended, pending re-allocation if not re-claimed within two weeks. goIPv6 will not guarantee the reclamation of the same resource once it has been re-allocated. If you want to re-claim your suspended resources, please email to info@goipv6.hk within two weeks after the resource is suspended.

I have setup the tunnel, what else do I need?

Since you have now setup your IPv6 tunnel, this is the first step for you to access the world of IPv6. You should first add an IPv6 Domain Name Service (DNS) server to your computer. goIPv6 currently do not provide a public IPv6 DNS server, but there are a few public service that you can use. The following link provide some information to these services:

<https://developers.google.com/speed/public-dns/docs/using>

This will allow you have access the IPv6 from your computer.

If you then need to present yourself (web site etc) to the IPv6 world, you will need to register a Domain Name for your site and register your IPv6 address to the Domain Name onto an Name Server (DNS Name Server). There are quite a few domain name registries or registrars, which can register domain names (for example, to register a .hk domain name, you may check with the registrars at <https://www.hkirc.hk/content.jsp?id=280>), and you will need to contact an ISP, who can provide Name Server service. Usually an ISP could do both for you.

Just like IPv4, IPv6 can provide a suite of services, like web, email etc., but setting up these services are beyond the scope of this FAQ. You may refer to the following link for some typical services:

<http://httpd.apache.org/docs/2.2/bind.html>

<http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/6ad3cff7-10f7-4499-8673-e866795607d1.mspx?mfr=true>

Tunnel Configuration

Users will always be able to view the example configurations provided in the goIPv6.hk interface.

****Please note, in order to setup IPv6 tunnel, you will need to perform the following commands with the appropriate user privileges, ie. for Microsoft Windows you might need administrator right etc. To run command prompt with elevated or administrative privileges in Microsoft Windows please following the instruction in the following link:**

<http://windows.microsoft.com/en-hk/windows7/command-prompt-frequently-asked-questions>

Configuring a tunnel under Microsoft Windows

Legend of variables:

\$ipv4a = tunnel server's IPv4 IP

\$ipv4b = user's IPv4 IP

\$ipv6a = tunnel server's side of point-to-point /64 allocation

\$ipv6b = user's side of point-to-point /64 allocation

You will need to fill in your user's IPv4 IP in the commands below.

Note: If your computer is connected to your ISP directly, your user's IPv4 IP will be your public Client IPv4 Address. But if you are using a router, please use local Client IPv4 Address

To obtain your user's IPv4 IP address for Windows:

ipconfig /all (Please use the IPv4 Address marked "Preferred" as user's IPv4 IP Address)

Windows XP(SP3)*

ipv6 install

```
netsh interface ipv6 add v6v4tunnel GoIPv6 $ipv4b $ipv4a
```

```
netsh interface ipv6 add address GoIPv6 $ipv6b
```

```
netsh interface ipv6 add route ::/0 GoIPv6 $ipv6a
```

- * Do not use Windows XP Service Pack version less than SP3. Also there is issue with Windows XP DNS, see link <http://technet.microsoft.com/en-us/network/cc987595.aspx>. There are steps to overcome this, but is beyond the scope of this document.

To remove the tunnel settings:

```
ipv6 reset
```

Windows 2008/Vista/7

```
netsh interface teredo set state disabled
```

```
netsh interface ipv6 add v6v4tunnel IP6Tunnel $ipv4b $ipv4a
```

```
netsh interface ipv6 add address IP6Tunnel $ipv6b
```

```
netsh interface ipv6 add route ::/0 IP6Tunnel $ipv6a
```

To remove the tunnel settings:

```
netsh interface ipv6 delete route ::/0 IP6Tunnel $ipv6a
```

```
netsh interface ipv6 delete address IP6Tunnel $ipv6b
```

```
netsh
```

```
interface ipv6
```

```
show interface (to get the index no. of "IP6Tunnel")
```

```
delete interface $index
```

Configuring a tunnel under Linux

Legend of variables:

\$ipv4a = tunnel server's IPv4 IP

\$ipv4b = user's IPv4 IP

\$ipv6a = tunnel server's side of point-to-point /64 allocation

\$ipv6b = user's side of point-to-point /64 allocation

Using ifconfig:

```
ifconfig sit0 up
```

```
ifconfig sit0 inet6 tunnel ::$ipv4a
```

```
ifconfig sit1 up
```

```
ifconfig sit1 inet6 add $ipv6b/64
```

```
route -A inet6 add ::/0 dev sit1
```

Using ip:

```
modprobe ipv6  
ip tunnel add hk-ipv6 mode sit remote $ipv4a local $ipv4b ttl 255  
ip link set hk-ipv6 up  
ip addr add $ipv6b/64 dev hk-ipv6  
ip route add ::/0 dev hk-ipv6  
ip -f inet6 addr
```

Configuring a tunnel under *BSD & MacOS X

Legend of variables:

\$ipv4a = tunnel server's IPv4 IP
\$ipv4b = user's IPv4 IP
\$ipv6a = tunnel server's side of point-to-point /64 allocation
\$ipv6b = user's side of point-to-point /64 allocation

FreeBSD

```
ifconfig gif0 create  
ifconfig gif0 tunnel $ipv4b $ipv4a  
ifconfig gif0 inet6 $ipv6b $ipv6a prefixlen 128  
route -n add -inet6 default $ipv6a  
ifconfig gif0 up
```

OpenBSD

```
ifconfig gif0 tunnel $ipv4b $ipv4a  
ifconfig gif0 inet6 alias $ipv6b $ipv6a prefixlen 128  
route -n add -inet6 default $ipv6a
```

NetBSD & MacOS X

```
ifconfig gif0 tunnel $ipv4b $ipv4a  
ifconfig gif0 up  
ifconfig gif0 inet6 $ipv6b $ipv6a prefixlen 128  
route add -inet6 default $ipv6a
```

To remove the tunnel settings:

```
ifconfig gif0 deletetunnel  
ifconfig gif0 down  
ifconfig gif0 inet6 delete $ipv6b  
route delete -inet6 default $ipv6a
```

NOTE When behind a firewall appliance that passes protocol41, instead of using the Client IPv4 endpoint you provided to our broker, use the IPv4 address you get from your appliance's DHCP service.

Configuring a tunnel under Cisco & Juniper & Vyatta & Alcatel & NetScreen

Legend of variables:

\$ipv4a = tunnel server's IPv4 IP

\$ipv4b = user's IPv4 IP

\$ipv6a = tunnel server's side of point-to-point /64 allocation

\$ipv6b = user's side of point-to-point /64 allocation

Cisco

```
interface tunnel0
description HKIRC IPv6 Tunnel Broker
no ip address
ipv6 enable
ipv6 address $ipv6b/64
tunnel source $ipv4b
tunnel destination $ipv4a
tunnel mode ipv6ip
ipv6 route ::/0 tunnel0
```

Juniper

```
interfaces {
  ip-0/1/0 {
    unit 0 {
      tunnel {
        source $ipv4b;
        destination $ipv4a;
      }
      family inet6 {
        address $ipv6b/64;
      }
    }
  }
}

routing-options {
  rib inet6.0 {
```

```
static {
    route ::/0 next-hop $ipv6a ;
}
}
```

```
security {
    forwarding-options {
        family {
            inet6 {
                mode packet-based;
            }
        }
    }
}
```

Vyatta

configure

edit interfaces tunnel tun0

set encapsulation sit

set local-ip \$ipv4b

set remote-ip \$ipv4a

set address \$ipv6b/64

set description "HKIRC IPv6 Tunnel"

exit

set protocols static interface-route6 ::/0 next-hop-interface tun0

commit

Alcatel Lucent Omniswitch 6850

ipv6 interface hktunnel tunnel 1

ipv6 interface hktunnel tunnel source \$ipv4b destination \$ipv4a

ipv6 address \$ipv6b/64 hktunnel

ipv6 static-route ::/0 gateway \$ipv6a

NetScreen 5GT

set interface tunnel.1 zone Untrust

set interface tunnel.1 ipv6 mode host

set interface tunnel.1 ipv6 ip \$ipv6b/64

set interface tunnel.1 ipv6 enable

set interface tunnel.1 tunnel encap ip6in4 manual

set interface tunnel.1 tunnel local-if untrust dst-ip \$ipv4a

unset interface tunnel.1 ipv6 nd nud

```
set interface tunnel.1 ipv6 nd dad-count 0
set route ::/0 interface tunnel.1 gateway $ipv6a
```

Provide IPv6 Services: Setting up a website as an example

Make yourself present on the IPv6 Internet

- Register a domain name. You can do that (for .hk and .香港) with a registrar eg. www.hkdnr.hk or any listed here <https://www.hkirc.hk/content.jsp?id=2>
- If you already have, you will also need to host your domain name on a Domain Name Service Server or DNS Server. Basically this server will tell the world what IP your domain name hence your service is located on. Your ISP or Hosting Company can usually do this for you.

Providing services

- In order to provide services on the IPv6 network, you will need to host the service. As you are using our IPv6 Tunnel Service, we will assume you will be hosting this yourself. To host a Web site, you will need a Web Server to serve the content you wish to provide. There are many Web Servers available in the market and it is beyond the scope of this FAQ to going into all them, but there are a few mention in [I have setup the tunnel, what else do I need?](#). Usually your ISP and hosting company can help you with setting up the web server and also provide Website Administrator function for you.

Other sources of information:

SME on IPv6 - <http://www.ipv6now.hk/en/lamSME.php>

List of Internet Service Providers (ISP) -

http://www.ofca.gov.hk/en/media_focus/data_statistics/internet/list_of_internet_service_providers/