Tunnelling

In order to setup a tunnel connection between two AREDN nodes, one needs to act as the server, and the other as the client. In this example, VA7FI-HAP-1 is the server and VE7RBE-HAP-1 is the client (and the details are made up):

Server Side

On VA7FI-HAP-1's `Tunnel Server` page:

- **Client**: `VE7RBE-HAP-1` is Robert's node name.
- **Pwd**: Create a unique password for that node.
- **Net**: `172.31.39.164` is automatically assigned by the hAP.
- Some optional contact info can be added.

In addition to this information, VA7FI's public IP address will also need to be given to VE7RBE. To find your public IP address quickly, you can simply search for “what's my ip” in your favourite search engine:

Google	DuckDuckGo

Client Side

On VE7RBE-HAP-1's `Tunnel Client` page:

- **Server**: `154.12.201.102` is VA7FI-HAP-1's public IP address
- **Pwd**: is the password created by VA7FI
- **Network**: `172.31.39.164` is the **Net** address automatically generated by VA7FI-HAP-1

More About Public IP Addresses

Most residential internet services are given a single *dynamic* IP address, which means that the address can *change* every few days or so (or when the router power cycles). This means that when a server node suddenly gets a new public IP address, the client node can't find it anymore.

One solution is to use a Dynamic_DNS service like No-IP. These services query your *dynamic* IP address, and translate it into a *static* hostname. It's that hostname that you then give the AREDN client (instead of your public IP address).

However, the No-IP service needs to be “told” when your dynamic IP address changes. This can be done by installing a small program that notifies them of the change, or alternatively, some routers have that function already built in. For example, on my Telus T3200M router, I can enter my No-IP account information under:

`Advanced Setup` → `Dynamic DNS`

With this setup, every time Telus gives me a new public IP address, the router notifies No-IP, which updates it so that `myfancyhostname.ddns.net` continues to point to my router. So using `myfancyhostname.ddns.net` instead of `154.12.201.102` as the Server address will ensure the connection continues when the IP address changes.

Port Forwarding

On Telus, I had to forward port 5525 to my hAP. There's two steps to this.

DHCP Reservation

Just like Telus gives me a *dynamic* IP address, my router gives my devices *dynamic* IP addresses as well. The first step is to force the router to always give the same IP address to the hAP. On the T3200M this is done in:

`Advanced Setup` → `DHCP Reservation`

- Select the MAC address of the hAP from the list
- Choose an IP address to assign it

Port Forwarding

Now that the hAP's LAN IP address is fixed, we can forward a port to it:

`Firewall` → `Port Forwarding`

- Select the hAP's IP address from the list
- Enter 5525 in all four Port fields
- Select TCP