

Tunnel Server Setup



Most nodes will be set up as [Tunnel Clients](#). If you aren't sure, you probably don't need to follow the steps on this page.

If you'd like your node to be able to act as a Tunnel Server and allow other nodes to connect to you, you will need to make sure that your node is available over the Internet. This includes configuring a dynamic DNS entry, and making some firewall or port forwarding settings.

DNS Name

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, the No-IP account can be entered in the Telus T3200M router [here](#):

[Advanced Setup](#) → Dynamic DNS

The screenshot shows the AREDN web interface. At the top is a green navigation bar with five icons: Home (house), Status (monitor), Wireless Setup (Wi-Fi), Firewall (flame), and Advanced Setup (wrench and screwdriver). The Advanced Setup icon is highlighted with a red rectangle. Below the navigation bar is a sidebar on the left with a tree view of settings. Under 'Blocking/Filtering', 'IP Address', 'Security', 'Storage Service', and 'Modem Utilities' are listed. 'Dynamic DNS' is highlighted with a red rectangle. The main content area is titled 'Dynamic DNS' and contains the following steps:

- Set the dynamic DNS state.**
Dynamic DNS State: ☒ Enable ☐ Disable
- Select the dynamic DNS provider.**
Dynamic DNS provider:
- Enter your username and password.**
Username:
Password:
- Enter the dynamic DNS host name.**
Hostname:
- Click Apply to save changes.**

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.

Port Forwarding

Port 5525 has to be forwarded to the hAP. There are two steps to this:

DHCP Reservation

Just like Telus gives the router a *dynamic* WAN IP address, the router gives the home devices *dynamic* LAN IP addresses. 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

The screenshot shows the AREDN web interface. At the top is a green navigation bar with five icons: Home (house), Status (monitor), Wireless Setup (Wi-Fi), Firewall (flame), and Advanced Setup (wrench and screwdriver). The 'Advanced Setup' icon is highlighted with a red rectangle. On the left is a sidebar menu with two sections: 'Blocking/Filtering' (Services Blocking, Website Blocking, Scheduling Access, Parental Controls) and 'IP Address' (WAN IP Addressing, IPv6 WAN Settings, LAN IP Settings, IPv6 LAN Settings, **DHCP Reservation**, Dynamic DNS, DNS Host Mapping, Port Bridging, MoCA LAN Setup). The 'DHCP Reservation' item is highlighted with a red rectangle. The main content area is titled 'DHCP Reservation' and contains the following text: 'DHCP reservation leases a permanent DHCP allocated address to a client.' Below this are two steps: '1. Select MAC Address, or manually enter a MAC address.' and '2. Select an IP address to associate with a MAC address.' Each step has a dropdown menu labeled 'Manually enter the [MAC Address / IP address]' and a text input field labeled 'Manually Add [MAC Address / IP Address]'. At the bottom, there is a table with one row showing 'VA7FI-HAP-1', '08:5...', '27', and '192.168.1.204', with a green 'Remove' button next to it.

- Select the MAC address of the hAP from the list.
- Choose an IP address to assign it.
- Disconnect the hAP from the router and reconnect it to clear the IP.

Port Forwarding

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

[Firewall](#) → Port Forwarding

The screenshot shows the AREDN web interface. At the top is a navigation bar with icons for Home, Status, Wireless Setup, Firewall (highlighted with a red box), and Advanced Setup. On the left is a sidebar menu under the heading 'Firewall' with options: Firewall, IPv6 Firewall, Port Forwarding (highlighted with a red box), Applications, DMZ Hosting, IPv6 DMZ Hosting, and UPnP. The main content area is titled 'Port Forwarding' and contains the following text: 'Enter ports or port ranges required to forward Internet applications to a LAN device below.' It then lists two steps: '1. Set the LAN/WAN port and IP information.' and '2. Click Apply to save changes.' Below step 1 are input fields for 'Select LAN Device' (a dropdown menu set to 'Manually enter the IP address'), 'LAN IP Address', 'External (WAN) Start Port', 'External (WAN) End Port', 'Internal (LAN) Start Port', 'Internal (LAN) End Port', and 'Protocol' (a dropdown menu set to 'TCP'). Below step 2 is a green 'Apply' button. At the bottom is a table titled 'Applied Port Forwarding Rules' with columns: LAN START/ END PORT, PROTOCOL, LAN IP ADDRESS, WAN START/END PORT, MODIFY, and REMOVE. The table contains one rule with the following values: LAN START/ END PORT: 5525/5525, PROTOCOL: TCP, LAN IP ADDRESS: 192.168.1.204, WAN START/END PORT: 5525/5525, MODIFY: Modify button, REMOVE: Remove button.

LAN START/ END PORT	PROTOCOL	LAN IP ADDRESS	WAN START/END PORT	MODIFY	REMOVE
5525/5525	TCP	192.168.1.204	5525/5525	<button>Modify</button>	<button>Remove</button>

- Select the hAP's IP address from the list
- Enter 5525 as the start and 5535 as the end (if you want to give 10 tunnels)
- Select TCP

AREDN Server Setup

Now we can go back to AREDN and add a server:

Tunnels Help

Tunnel Server
DNS name of this tunnel server

Add tunnel
Add a tunnel from a template

Wireguard Server +

Wireguard Server

Notes... 

1. add your DNS name
2. select Wireguard Server and click the +
3. enter the name of the client
4. the rest of the information will auto populate
5. click the clipboard icon and copy the information, which you'll need to send to the client.
6. click Done
7. select Commit

Pending changes: 2 Commit Revert