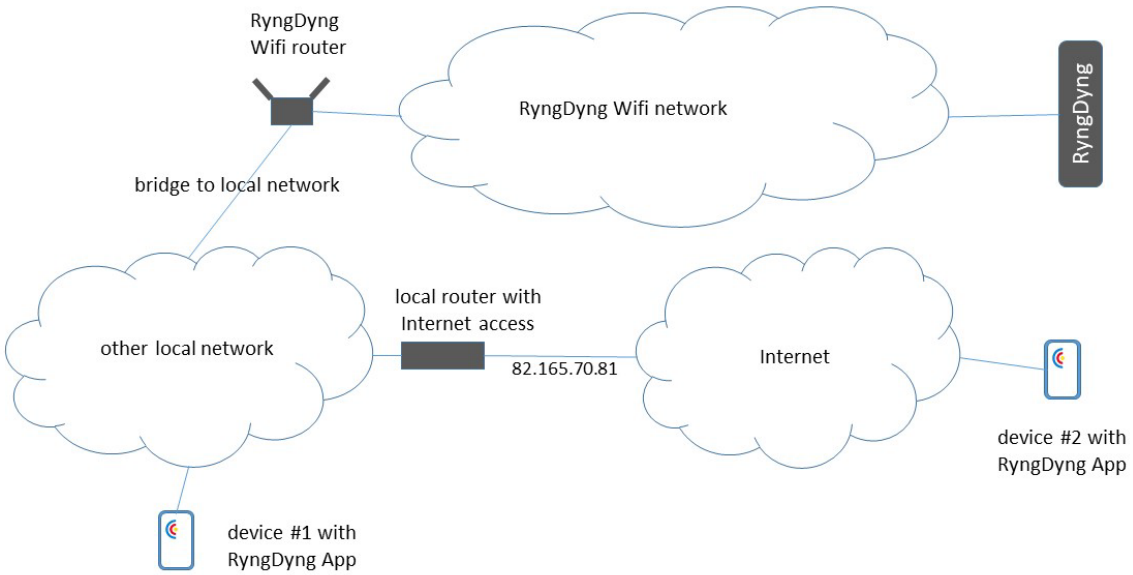
Remote Access to RyngDyng

This document applies to the RyngDyng WiFi router with firmware version from 4.x.x (delivered from 11/2024).

Architecture

This document describes how to access RyngDyng systems remotely, i.e. without a direct connection to the RyngDyng Wi-Fi network. You can achieve this by means of an **OpenVPN tunnel** from the Internet / local network into the RyngDyng Wi-Fi router.

Example for a possible architecture:



If you do not need the remote access via the internet (like device #2) but only from the local network (like device #1) you may skip some of the configuration steps below.

Bridge to local network

There are two possibilities establishing a bridge between the RyngDyng Wi-Fi network and a local network. First is to use an Ethernet cable plugged into the WAN port of the RyngDyng Wi-Fi router and into a LAN port of the local router. Second option is to establish a Wi-Fi bridge.

You can download a document from our server, describing these options in more detail: How to establish Internet Access.

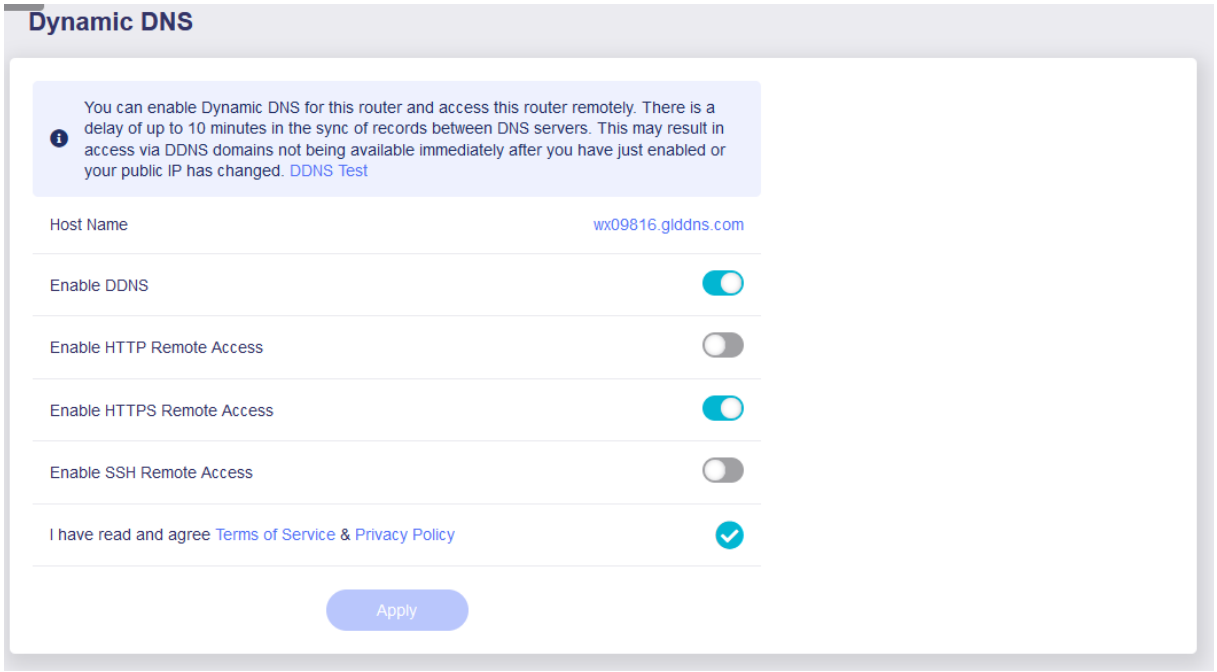
Dynamic DNS

Remark: This section is required only if you want to enable remote access to RyngDyng from networks outside the local network, i.e. when access is needed via the Internet.

Typically, the public IP address of your local network router changes regularly. Therefore, you need to set-up a 'follow-me' service for your public IP address, called Dynamic DNS.

The RyngDyng Wi-Fi router is prepared to do this for you. Follow these steps:

1. Connect a PC to the RyngDyng Wi-Fi network
2. Open a browser and type in the URL of the router: http://10.10.10.254
3. Log into the router web page using the same password that you used to connect to the Wi-Fi network
4. Go to page `Applications -> Dynamic DNS`
5. Activate `Enabled DDNS` and `Enable HTTPS Remote Access` and check `I have read and agreed Terms of Service ….`
6. Note down the displayed host name. Typically, it is the form `wx09816.glddns.com`
7. Press button `Apply`



After 10 minutes, you can test the DDNS service in a Windows or Linux console by typing this command (use your specific DDNS service address from above):

```
nslookup wx09816.glddns.com 8.8.8.8
```

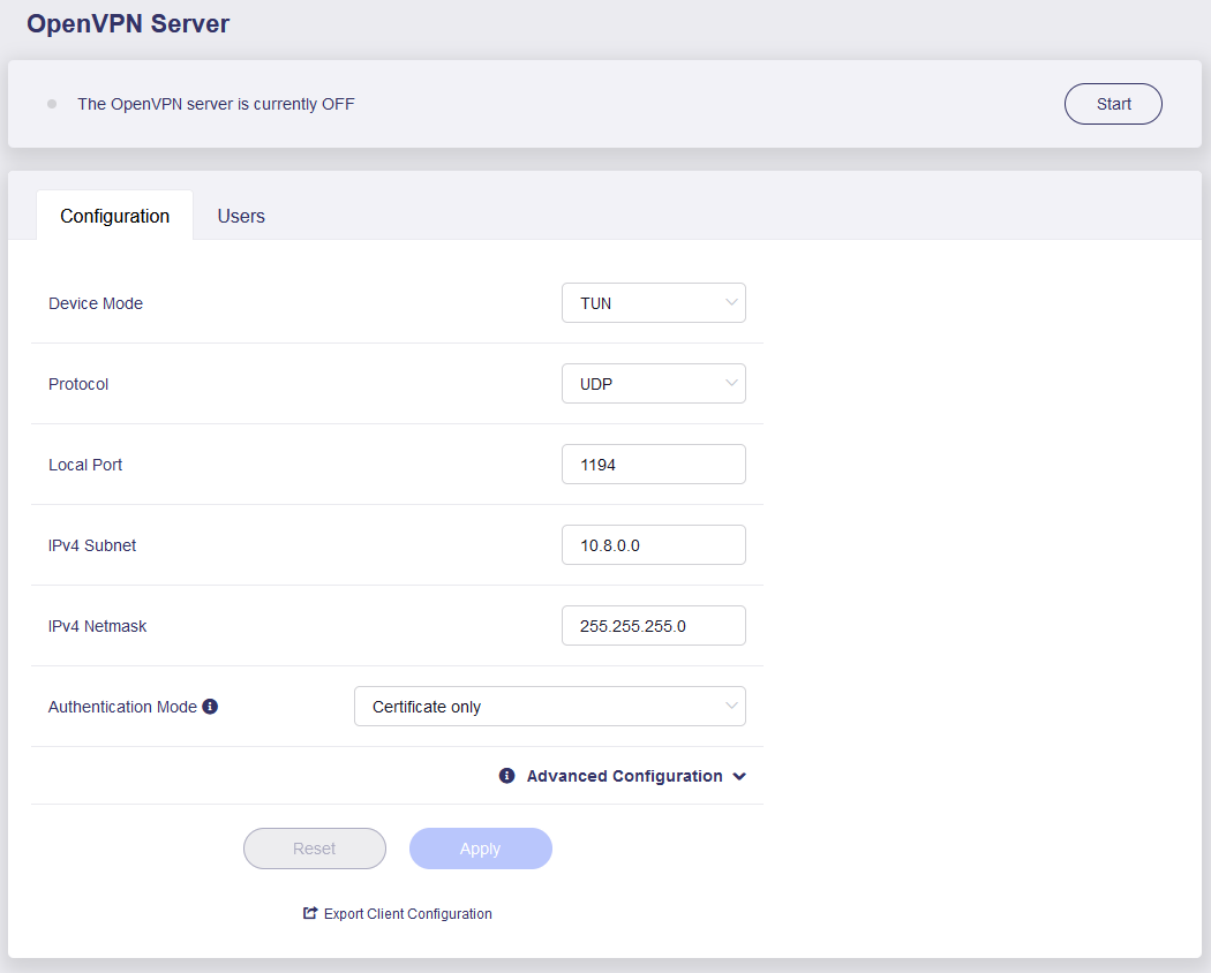
The response shows the current public IP address of your local router (82.165.70.81 in our example architecture image above). This will only work when the RyngDyng Wi-Fi router is powered on and connected to your local network via a bridge.

This test should work on any computer connected to the Internet.

OpenVPN Server

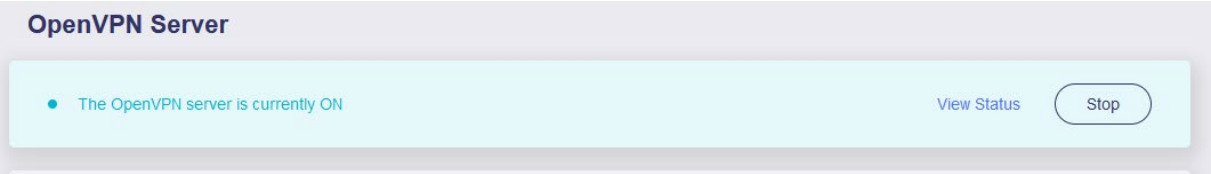
Next step is to activate the OpenVPN server inside the RyngDyng router.

1. Go to page `VPN -> OpenVPN Server`
2. Press button `generate configuration` (only if this button shows up. Maybe the configuration is already there)
3. Click on link `Export Client Configuration`, enable `Use DDNS Domain` and save client configuration file to your computer (maybe you want to give it the file name `ryngdyng.ovpn`)
4. Press button `Start` (top right)



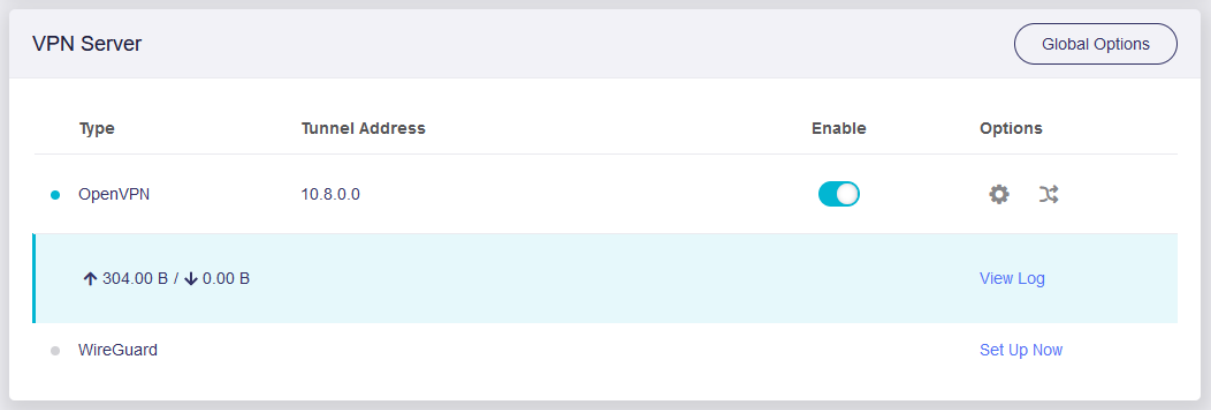
The default value for field `Port` is `1194`. This is the TCP port used by the VPN tunnel.

After the service started you will see this information:

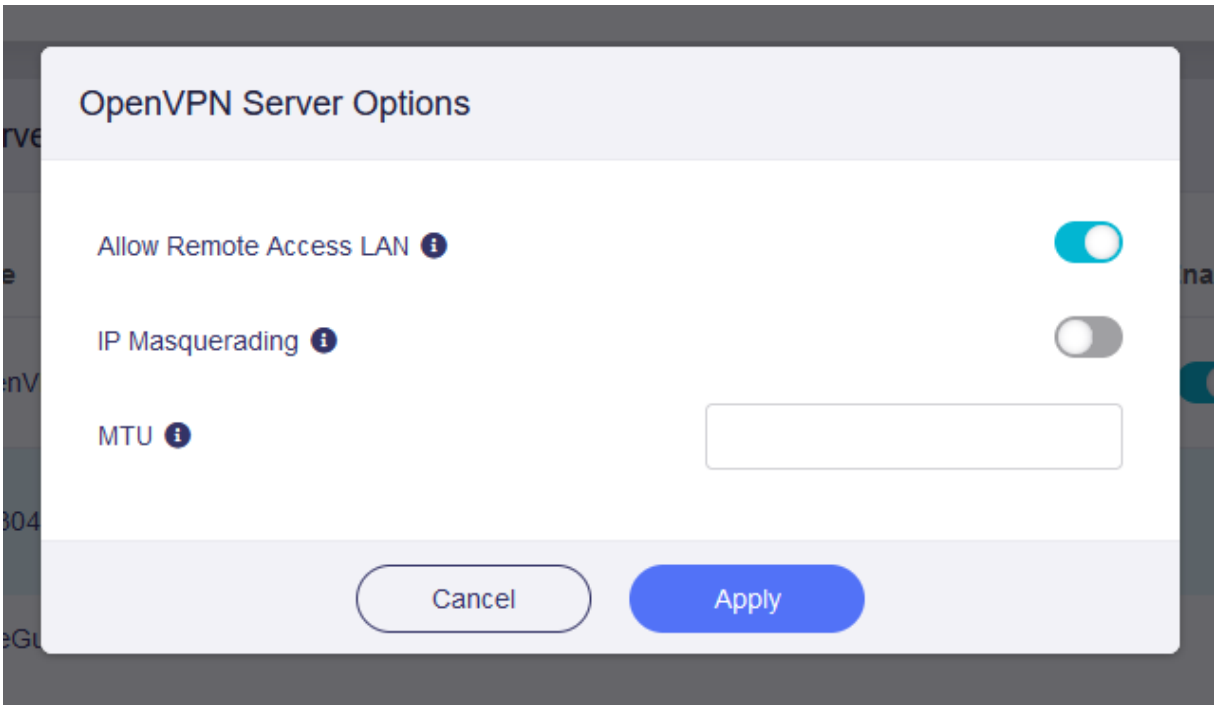


Click on `View Status`

Then you will see this information



Clock on the Options icon (cogwheel) and switch on `Allow Remote Access LAN`. Then press Apply.



Now the OpenVPN server is ready up and running.

Required changes to Client Configuration File

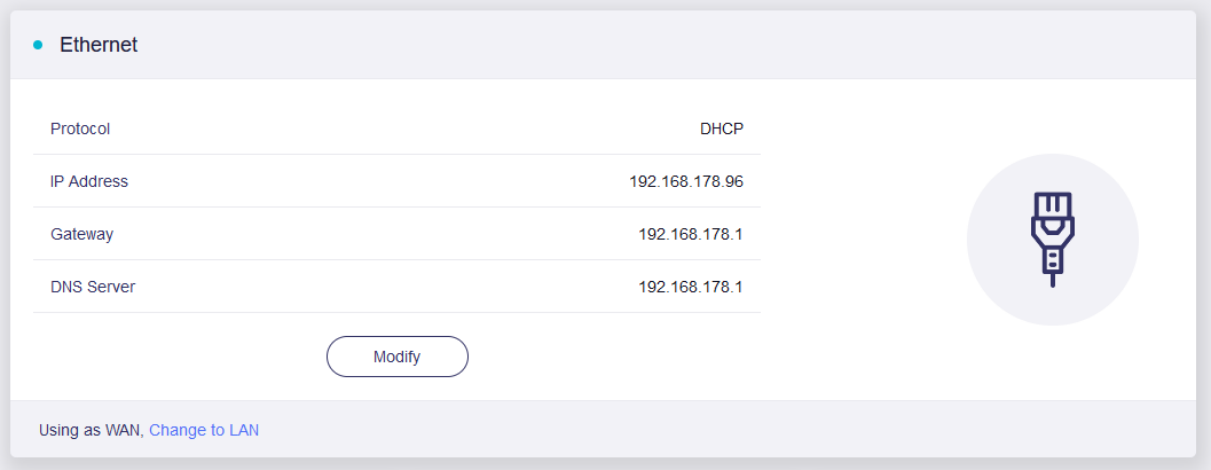
Open downloaded file `ryngdyng.ovpn` using a text editor. Change resp. add the following lines:

```
remote wx09816.glddns.com 1194
dhcp-option ADAPTER_DOMAIN_SUFFIX archery-electronics.com
dhcp-option DNS 10.10.10.254
```

Use the specific DDNS service address for your router (xxxxx.glddns.com). If you changed the port 1194 when activating the OpenVPN server, use the changed port here as well.

In case you do not need the remote access via internet but only via local network, then the line `remote` should look different.

Insert the local IP address of the RyngDyng WiFi router inside your local network (example: `192.168.178.96`). You can find this local IP address on page Internet, see this example



Then the line `remote` looks like this

```
remote 192.168.178.96 1194
```

It would be a good idea to configure this IP address inside your local router as a static address, i.e., it will always stay the same.

Port Sharing

Remark: This section is required only if you want to enable remote access to RyngDyng from networks outside the local network, i.e. when access is needed via the internet.

In order to build the OpenVPN tunnel through your local router, you will need to add a port sharing to your local router (sometimes called: port forwarding).

How this is done depends on the type of router. Most routers actually support port sharing.

The type of port sharing is `UDP` and the port number is `1194` (unless you changed it, see above). The port sharing is assigned to the RyngDyng router (usually, to the local router the RyngDyng router appears as a network device with hostname FunkDing).

If there are more than one router on the path from the Internet to the RyngDyng Wi-Fi router, all routers need to get this port sharing enabled.

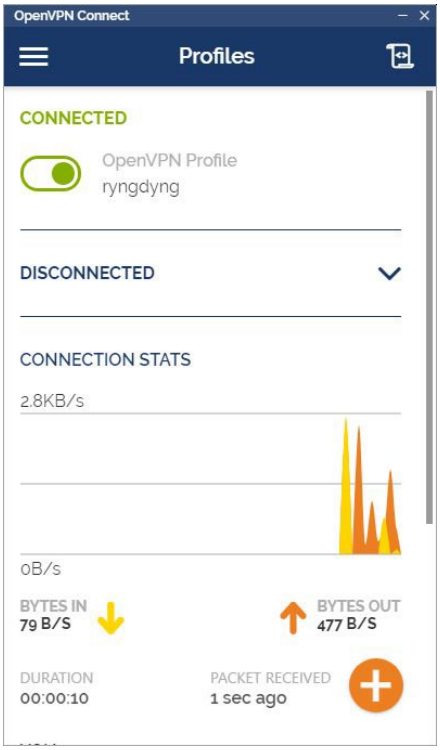
Install OpenVPN Client Software

The OpenVPN Client software is available for all operating systems such as Windows, iOS, Linux, Android etc.

Download and install the OpenVPN Client software on the device that should run the RyngDyng App remotely.

Start the OpenVPN client and add a new VPN connection profile (Plus sign). Import the previously created client configuration file `ryngdyng.ovpn`. Save the VPN connection profile.

Switch on the VPN tunnel:



Now, the VPN tunnel is active and you can test it by trying to access the RyngDyng Wi-Fi router. Open a browser and type in the URL http://10.10.10.254. You should get the web page of the RyngDyng router.

If a powered on RyngDyng system has connection to the RyngDyng Wi-Fi network, the RyngDyng App will be able to connect to this RyngDyng via the OpenVPN tunnel.

The device running the RyngDyng App can be connected to the local network or, residing at another location that has Internet access. It does not matter anymore.