Advanced Networking Guide – Configuring remote access

So, by now you should have your controller accessible via your home network, and you are asking yourself, “This is great, but I really like to be able to access my controller when I’m not at home.” This guide will apply to most network configurations. Of course, there are many different types of routers and network configurations out there, so this guide is not all inclusive. For a more comprehensive walkthrough we suggest you consult the “Networking” chapter found in the Comprehensive Reference Manual. With that being said, to setup internet access to your controller via the web interface of your controller:

1. DO NOT attempt remote access until you have local access to your controller from your home network working correctly. If you want wireless access setup to your controller, have that working correctly as well. If you try to do all three or even two of these at the same time you will not be successful and there will be so many possible problem areas you’ll never figure out what’s wrong.

2. Go to the configuration>network setup web page of your controller.

3. Disable DHCP and Update network settings. This will make your current network settings permanent if they aren’t already.

4. Please take note of your controller’s IP address. This is how your controller is identified on your home network. You’ll need this later.

5. Also, take note your “Gateway” - this is the IP address of your router.

6. Open a new web-browser tab and type: http://”IP Address of your Router”
   a. More than likely you’ll receive a login prompt. This is the user name and password of your router. It is often written on your router some place if changed from the default. If you cannot determine this, then consult the router’s user manual, Google or your ISP for the default values.

7. We need to locate the port forwarding section of your router. This is different for every brand of router, but here are some basic guidelines:
   a. Linksys: “Application and Gaming”
   b. Netgear: “Advanced> Port Forwarding”
   c. D-link: “Advance> Port Forwarding”
   d. Belkin: “Advance>Virtuual Servers”
   e. Verizon: “Firewall> Port Forwarding”
      i. For a specific Verizon tutorial see: http://www.reefcentral.com/forums/showthread.php?t=1760163
   f. 2-Wire, “Security> Applications and Pinholes”
      i. For a specific 2wire tutorial see the Networking chapter in the Comprehensive Reference Manual.

8. Now that you have located the port forwarding section in your router, we need to forward the web traffic to the Apex’s internal IP address located in step 3.
a. Most ISP’s block inbound port 80, the standard port used by internet traffic. So for your forwarding rule you must use something different. Use 9900. The internal port can remain 80 which is what your Apex is set to. So you’re going to forward inbound traffic coming in on 9900 to 80. The protocol should be TCP or BOTH (not UDP only), and the LAN IP/ internal IP to be forwarded should be the IP address of your Apex (see #4).

b. If your router requires an application name, just make something up like ‘apex’.

c. Many routers have a checkbox to ‘enable’ the rule. Look for that and make sure it’s checked. This is very important!

9. Now repeat step 7, and create another port forwarding rule to the telnet port, port 23 in your router. This port forwarding rule is for Neptune Systems should you ever have any problems or questions about your controller. You will have two port forwarding rules pointing towards your Apex’s internal IP address when finished.

a. You don’t need a different external port number like you did for 80. You can leave both the external and internal port numbers at 23.

b. Typically you can leave this rule disabled except when instructed by Neptune Systems to re-enable it (see 7c).

10. Make sure you ‘update’ or ‘save’ these rules in your router configuration. Typically, they take effect immediately – some routers will reboot in order to adopt them.

11. Finally, it’s time to see if your port forwarding rules worked. Open another browser tab and go to the website, www.whatismyip.com

a. This is address is known as your WAN IP, it is kind of like the telephone number for your router. How you dial your router when you are not at home. This is your router’s “external” IP address that will be forwarded to your Apex’s “internal” IP address.

b. With your external IP address in hand, go to www.reeftronics.net and select the ‘Apex/AC3 Network Diagnostic’ link from the ‘Tools’ menu.

c. Enter the following:
   i. Host or Public IP address - use your ‘WAN IP’ address from above.
   ii. Port - 9900
   iii. Username – your Apex username, default is ‘admin’
   iv. Password – your Apex password, default is ‘1234’

d. Reeftronics will attempt to access your controller. It will return a status page – green is good, red means there are errors.

12. If you get an error, here’s a couple of things to check:

a. Make sure you can still access your Apex locally from your browser by entering its IP address. Should be the same IP address as you noted in #4 – it will NOT be the external address you obtained in #11.

b. If it says your port is closed, go back into your router’s port forwarding page, make sure your internal and external port numbers are correct – 80 and 9900. Remember, you’re forwarding traffic inbound on 9900 to port 80 on your controller. Ensure the ‘enable’
box is checked. Ensure the IP address of your Apex is correct – should be the same as #4. Ensure the protocol is ‘TCP’ (not UDP).

c. If you get a message in the ‘Location Check’ that you’re not in the same location as your controller, then check that the WAN IP address you obtained is the one you used with Reefronics. You can go to ‘whatismyip.com’ again and check.

d. Reboot both your Apex and your router, router first.

13. Add an application and controller to your phone.
   a. For iOS devices tap the plus sign
   b. For Android devices tap the menu button then add
   c. Your “host name” is your WAN IP address
   d. Your “port” is 9900.
   e. You should now be able to access your controller via your smart phone outside your home network.

14. Dynamic Name Resolution is using an easy to remember name instead of your WAN IP address. Also, your ISP will change your WAN IP address from time to time so it’s best to use a static name instead. However, something has to keep the name and the changing (dynamic) WAN IP address in sync.
   a. Many routers, internet cameras and other web devices like game controllers have name resolution capabilities built in. For example, D-Link routers and web cameras include name resolution – it’s called ‘Dynamic DNS’. Linksys calls it ‘DDNS’. You may have to dig a little to find where it is configured for your device or Google for it with your device’s model number.
   b. If you don’t have a device that supports dynamic DNS (Apple routers DO NOT) then you can use a service like DynDNS.com to do this. Some services are free, some charge you. DynDNS is probably the best out but there are others that are free.
   c. If you use a service you have to make sure you also install their ‘updater’ client on a PC in your home that is connected to the internet 7x24. Without this, the service won’t know that your ISP changed your WAN IP address.
   d. When you create your dynamic DNS account, whether using your router/camera or whether you do it via a service, you’ll need your WAN IP address. You enter this during the setup of your hostname – after that it’s going to be updated automatically by the ‘updater’ client you install (see 12c).
   e. Once setup, go back to Reefronics and re-test as you did in step 9b – 9c only instead of entering your WAN IP address use your newly created hostname instead.
   f. If you setup your controller on your smart phone, change the WAN IP address to the hostname there as well.
As mentioned this is not an all-inclusive networking guide, and the steps outlined here may not apply to your specific network setup. Should you have any questions please feel free to email us at support@neptunesys.com or post a question on our community forums at http://forum.neptunesystems.com.