Proteus Wi-Fi Sensors
Accessing your sensor remotely / Port forwarding

Introduction
This application note serves as a guide to setting up port-forwarding on your Wi-Fi router so that you can access your sensor through the internet from outside of your home/office network.

To access the Proteus device remotely, you need to assign a static IP for your Proteus Sensor and set port forwarding on the wireless router to which Proteus is connected.

Important Note
Unless you have a static IP assigned to your internet connection, the chances are the external IP address will change once you repower/reset/restart the modem or router. This application note assumes that your modem/router has either a static external IP or your modem/router remains ON once you have identified the (dynamic) IP address.

If you wish to get a static IP, you need to enquire with your internet service provider.

Assign a Static IP Address for Proteus

First, assign a static IP address to your Proteus Sensor. A static IP address remains unchanged even on power ON/OFF, identifying a device on your network. Then, provide your router the static IP address of the Sensor for which you are opening the port. Follow these steps.

1. From a Windows computer connected to your network, click Start, and then type ‘cmd’ into the search field. Press Enter. This will open a command prompt window.

2. Type ‘ipconfig /all’ in the command prompt window. Press Enter.
Fig 1. Open command prompt
3. Record the following numbers listed under your network connection (labeled "Ethernet adapter Local Area Connection" or "Wireless LAN adapter Wireless Network Connection"):

   Subnet Mask
   Default Gateway
   DNS Servers

4. Pick an unused IP address for Proteus. This must be an IP in the same subnet (first 3 octets the same as your PC's IP address) with a different 4th octect. If your PC's address is 192.168.1.8, you can pick for e.g. 192.168.1.10. To ensure this newly picked IP address is NOT used by other device or computer, type ping IP address in the same command window with step 2.
For an unused IP address, ping should return message like "Destination host unreachable". For IP address in use, the return message will be "Reply from ... bytes=32 time=xx ms..."

5. Now that we have an unused IP, we are ready to assign this (static) IP address for Proteus.
   a. Open a web browser, go to Network Configuration page on Proteus.
   b. Make sure ‘Enable DHCP’ box is unchecked.
   c. Enter the network information. The IP address should be the unused IP you picked and tested in step 4, say 192.168.1.10 in this example. The Gateway, Subnet Mask and Primary DNS should be the same with what we collected in step 3.

**Network Configuration**

![Network Configuration](image)

**Fig 4. Network Setting for Proteus**

**Forward Port on the Router**

Now that you have a static IP assigned to Proteus device, log in to your router’s interface and open a HTTP port.

1. Open a Web browser, type your Default Gateway number (it is 192.168.1.1 in this example) into the address bar, and press Enter.
2. Enter your username and password to access your router’s interface. The default username and password should be listed in your router’s documentation, on a sticker on the side of your router, or on the Port Forward website. If the username and password have been changed from the defaults and you don’t remember them, you’ll need to reset your router.

3. To forward ports on your router, look for a tab or menu labeled "Applications & Gaming", "Advanced", "Firewall Settings", "Port Forwarding/Port Triggering", "NAT/QoS" or something similar.

4. No matter what the router or interface, you’ll need to enter the same basic information. Enter the port you want to open under Internal and External, or enter a range of ports to open under Start and End. For Proteus, the port number should be 80 for Internal and External, Start and End.

5. Choose the Protocol (TCP).

6. Enter the static IP address you created for Proteus.

7. Be sure Enable is selected if available. Enter a name, like HTTP, under Application if you want, then save the changes.

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Fig 5. Port Forwarding on Verizon FiOS Router
Now, if you want to check and be sure your router’s port is open and functioning, you can try with this web-based tool – the You Get Signal Port Forwarding Tester, or type http://www.yougetsignal.com/tools/open-ports/ in a web browser, see Fig 7. All you have to do is enter port number 80 in the box. Your external IP should be provided already, but if not, just click the “Use Current IP” link, then hit the “Check” button. This will check if your router has the port open and if it’s getting to a place on your network that can handle it. If everything’s good, you’ll see a green flag icon and a message that says that your port is open, Fig 7. Ultimately, though, you can try to access your forwarded service by using your external IP address. Record the "Remote Address" or "external address" shown on the webpage of Port Forwarding Tester, this is your router’s external IP address.
Fig 7. Port Forwarding Tester

Fig 8. Report from Port Forwarding Tester

9. Go to other place outside of your router like using your cell phone with data service, open a web browser, type your router’s external IP address, you should see the web interface of Proteus!

References: