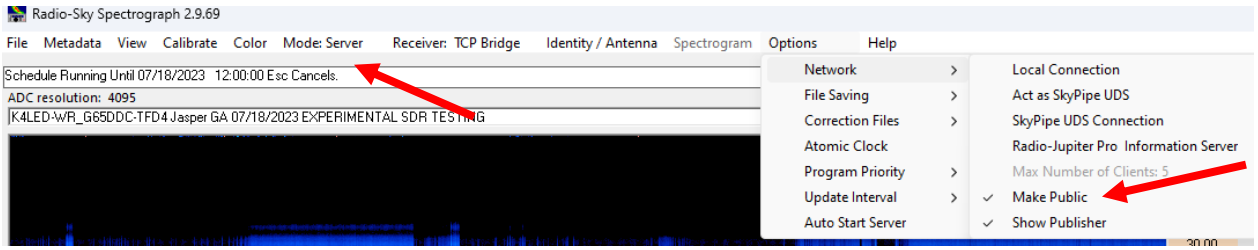
How To Stream Your Radio Sky Spectrograph (RSS) Data

By Larry Dodd

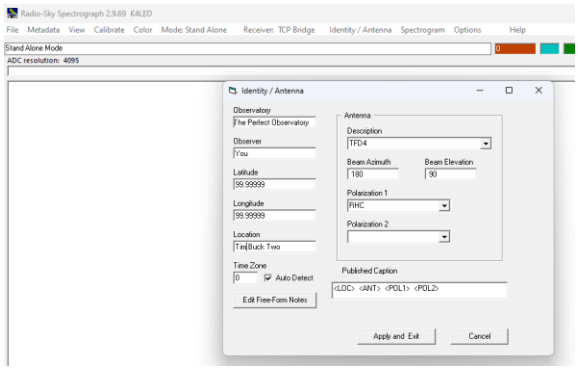
July 20, 2023

INTRODUCTION: This procedure "outlines" sharing your RSS data stream with others. Please be aware that opening ports on your computer to the outside internet world is at your own risk. You must decide if the risk is acceptable to you. It is "best" to open ports only on computers dedicated to streaming on wired ethernet connections. If you are uncomfortable changing settings in your computer operating system and router, get help from trusted others. Install antivirus and malware protection software on your computer. Malwarebytes is a good example. Installing a VPN may block port forwarding, and you may have to turn it off. Each router, internet service provider, and computer will be unique. You must search your documentation for the exact information about your equipment. Most router manuals are available online. The procedure consists of finding your internet IP address, setting a fixed IP address for your computer, port forwarding to open ports through the router, allowing RSS through the computer security firewall, and selecting "publish" and "server mode" in the RSS menus. Details are provided below. Each computer must have a unique fixed IP address and port number. You must read and use your router-specific manual to understand how port forwarding and setting fixed computer fixed IP addresses work in its various menus. If there is terminology or instructions that you do not understand, get help from trusted others. Some internet service providers do not support port forwarding. Be sure to have a good IP address in the options and network menu. Even better yet, get a No IP xxxxx.ddns.net address.

1. In RSS, open your Options, Network menu. Checkmark the bottom two items; Make Public and Show Publisher. It's assumed you have RSS running correctly. Also, be sure your RSS MODE is set to SERVER.



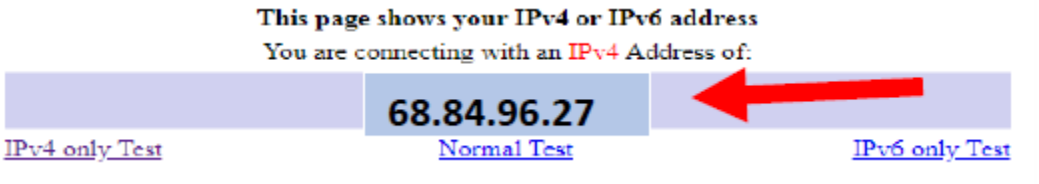
2. Fill in your observatory information in the RSS Identity/Antenna menu.



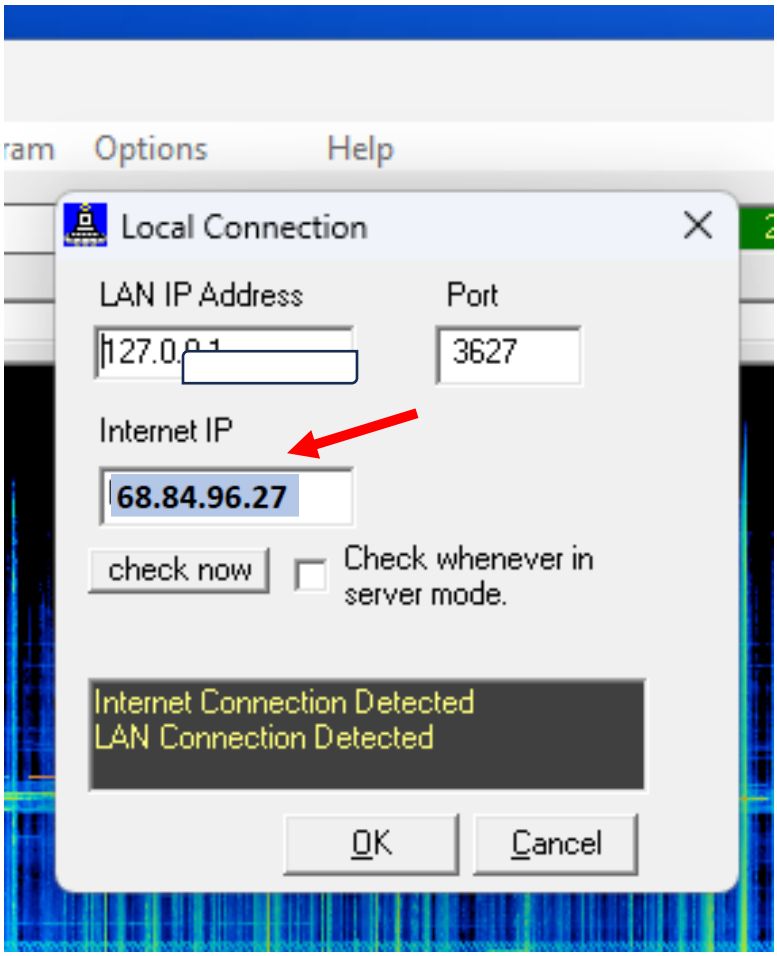
3. There are four unique numbers you need to collect and record below.

- Your internet IP address. Assigned by your service provider. _____
- Router IP address. Usually 192.168.1.1 or 192.168.0.1 _____
- Computer IP address (A static/fixed IP address is required.) _____
- Port number for the computer you want to use. _____ (If you add more computers, give each one an individual port number. Use the range 3267 to 3627.)

4. To find your internet IP address, open any browser and go to IP4.me. At the top, in bold black numbers, you will see your internet IP address. Yours will be different from the one shown below.

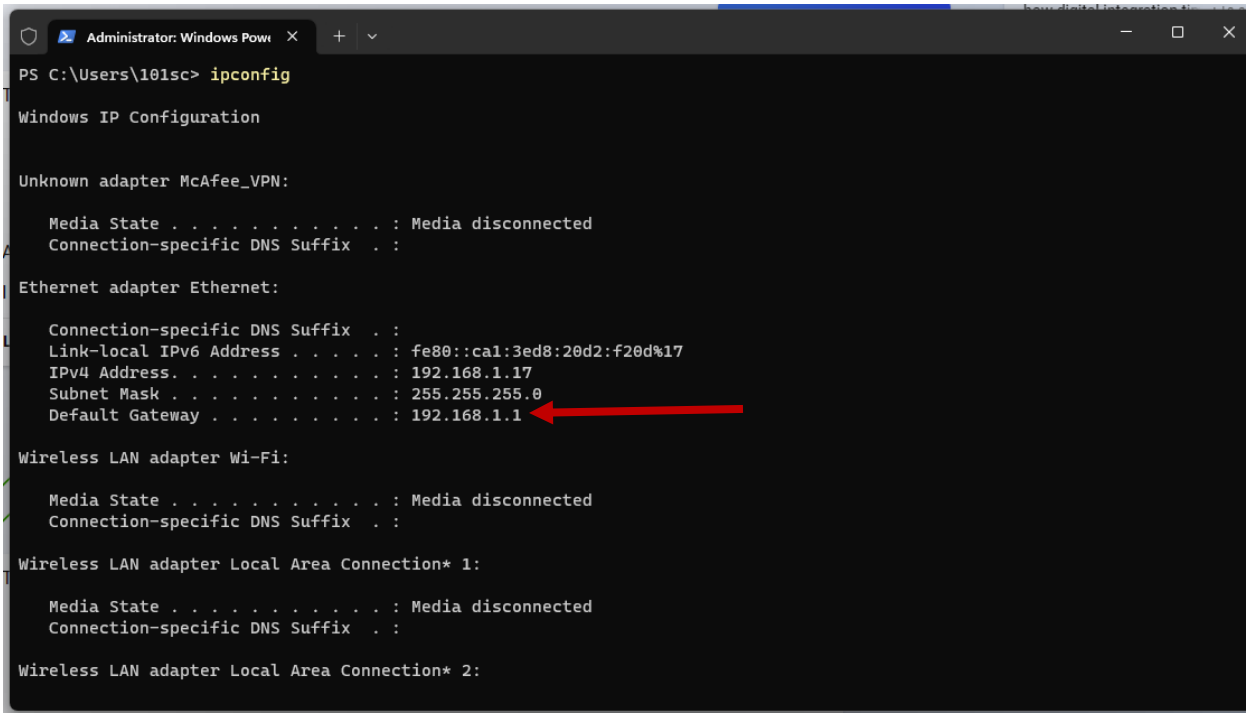


When you find your internet IP address, open RSS then click on the Options menu, Network, Local Connection, and enter your internet IP address or your NOIP.net alias IP address, as shown below. You can click the check now button to retrieve/verify your internet IP address.



5. Find your router IP address in a Windows 10 command window. (WIN11 click Terminal.)

- Click on START
- Type cmd in the search window.
- On the Command Prompt window, type in ipconfig and press enter.
- The Number indicated on the Default Gateway is your router IP address.

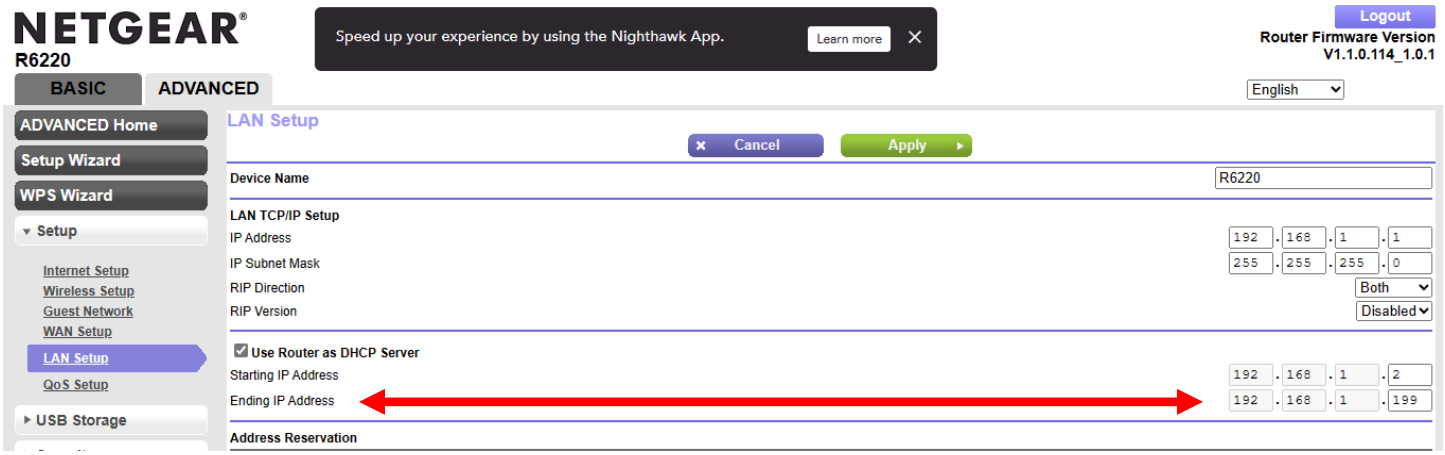


- In this example, it is 192.168.1.1 (Yours may be different, i.e., 192.168.0.1.)
- Also, note the IP4 address of your computer. 192.168.1.17 (Yours will/may be different.)
- In most cases, your default router ID/password will be admin/password.

Unfortunately, every internet router is different, and you must consult its specific documentation to understand how to set computer-fixed IP addresses and port forwarding computer port numbers. An example/guide will be given, but your specific router may differ. We have also found that certain cable router providers do not allow users to change configurations. Hopefully, you won't run into that roadblock. You will need to know your router's ID and password. It usually defaults to admin/password.

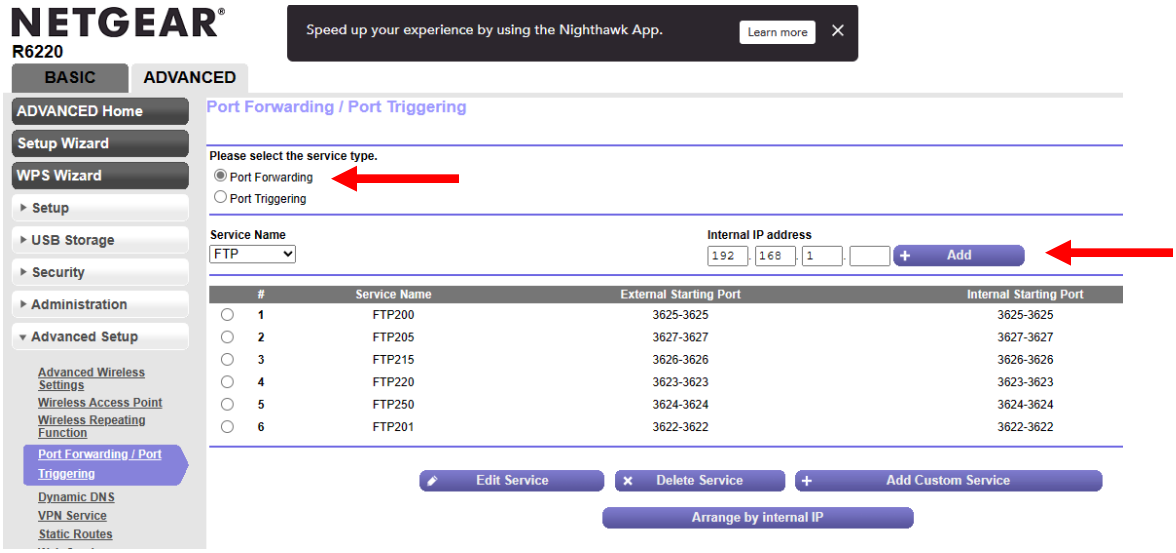
For port forwarding to work properly, set your computer to a fixed IP address outside the DHCP range set to 2-199. To simplify tracking, start your computer fixed/static IP numbers with 200, i.e., 192.168.1.200, etc. This computer will be associated with the first port number. Your router may start with 192.168.0.xxx.

Set your router's DHCP range to 2-199. (In your router's advanced setup, LAN settings.)

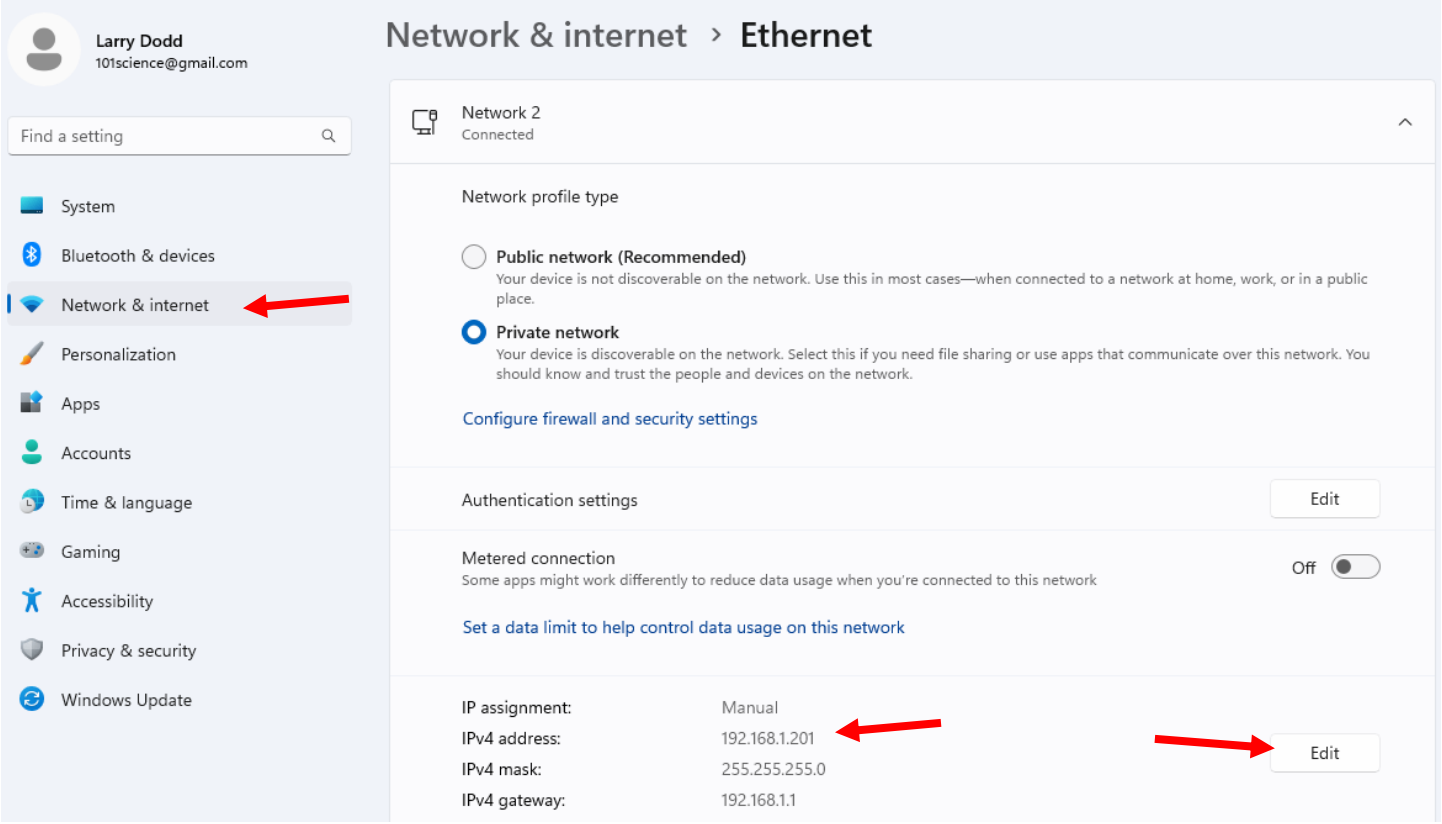


Add computer-fixed address reservations in the address reservation box, starting with 200, i.e., 192.168.1.200, 192.168.1.201.....

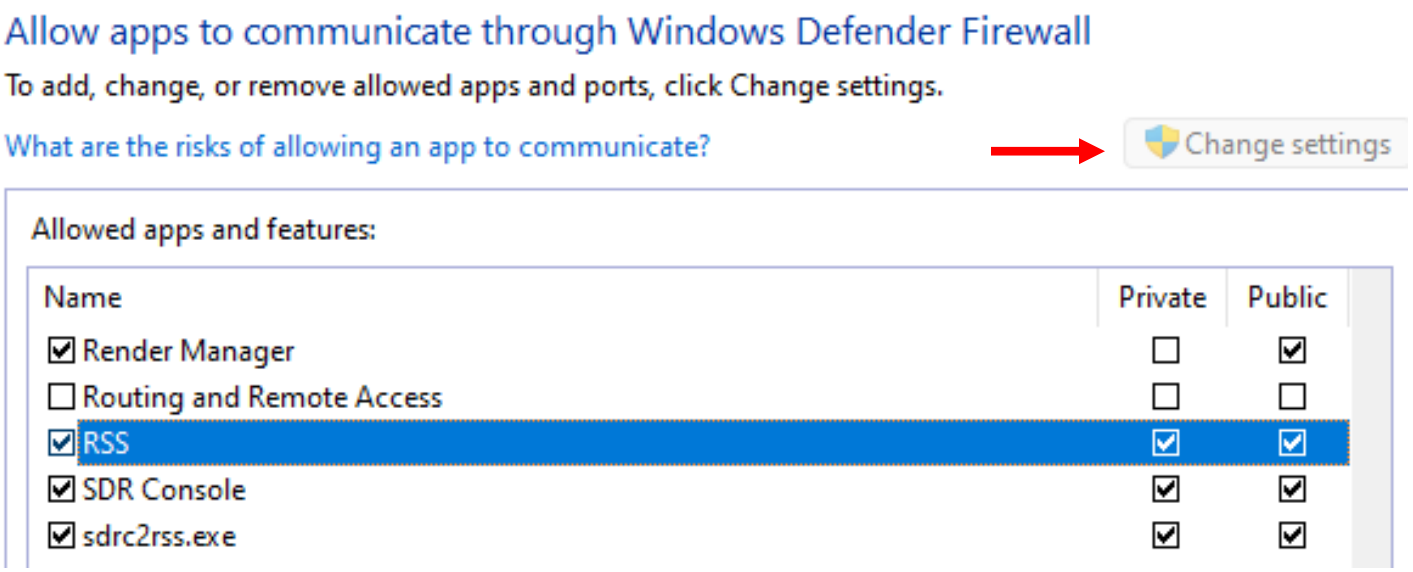
Set up Port Forwarding. (In your router's advanced Port Forwarding menu. Do not use Port Triggering.)



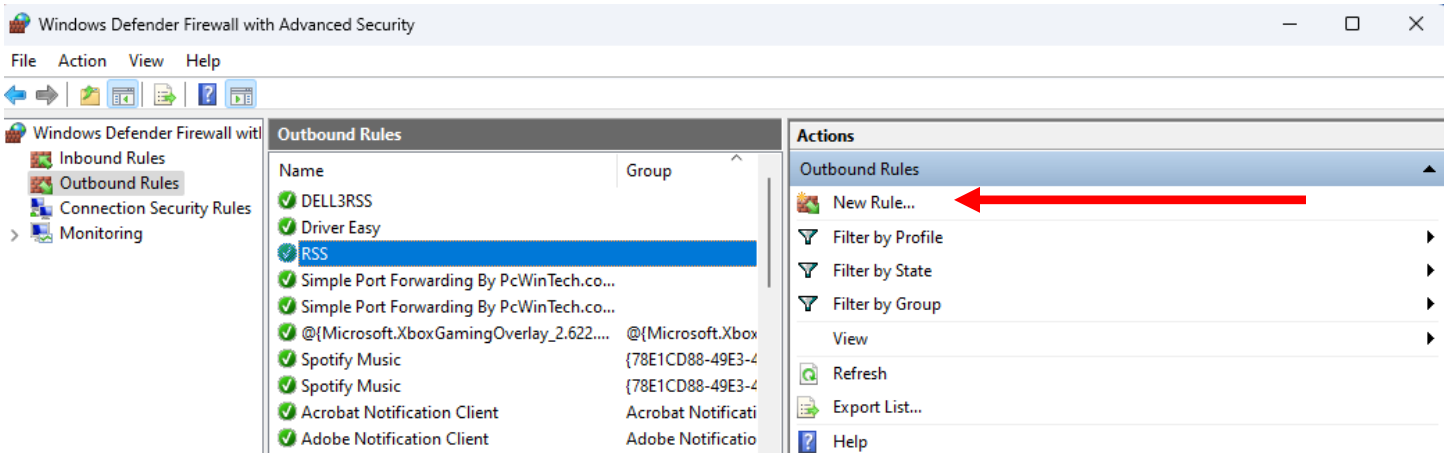
In your computer, set your network and internet ethernet connection to your static/fixed computer IP address. Connect your dedicated streaming computer to a wired ethernet connection on your router. (Wi-Fi connections may work but are slower and less secure.)



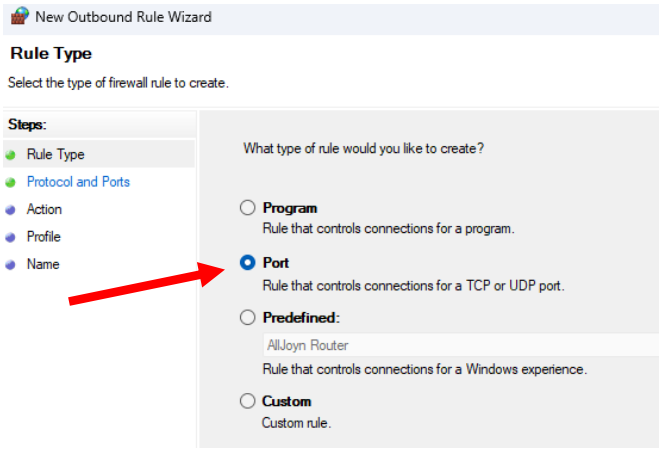
Open the Windows Defender Firewall app. Allow RSS, etc., through the firewall by clicking "Change Settings."



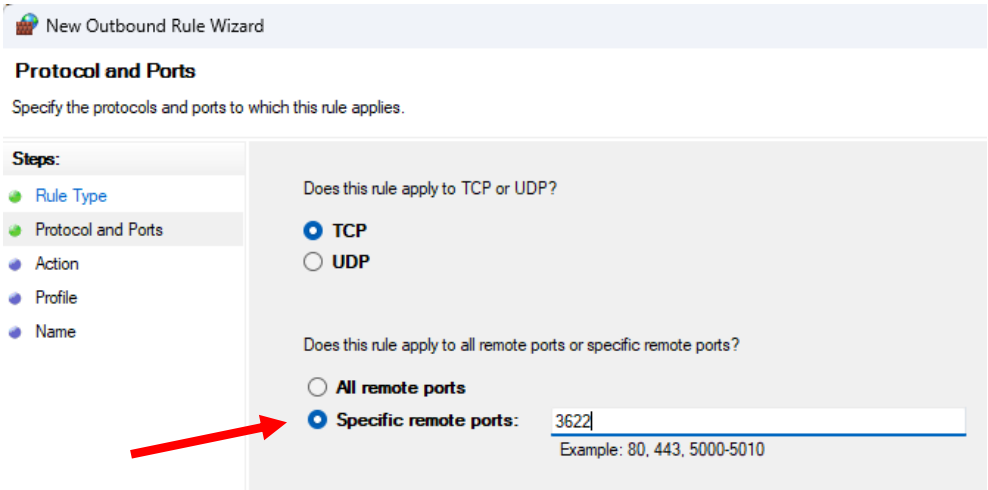
In Windows Defender Firewall Advanced settings allow each port number you have assigned to a Fixed IP address through the firewall. Click on New Rule.



Click PORT.



Click on next, then enter the specific port number to open.



Repeat these firewall steps for each port number you need to open in a new outgoing and incoming rule.

It sometimes happens that after opening ports, they are still blocked by your internet provider or other software. There is no easy way of troubleshooting or fixing those

issues. You can determine if a port is open to the internet or not by using a port checker internet page or apps. Use your favorite internet search engine to find an online "port checker" or apps to download. Always reboot your computer after making changes to ensure the new settings are in effect.