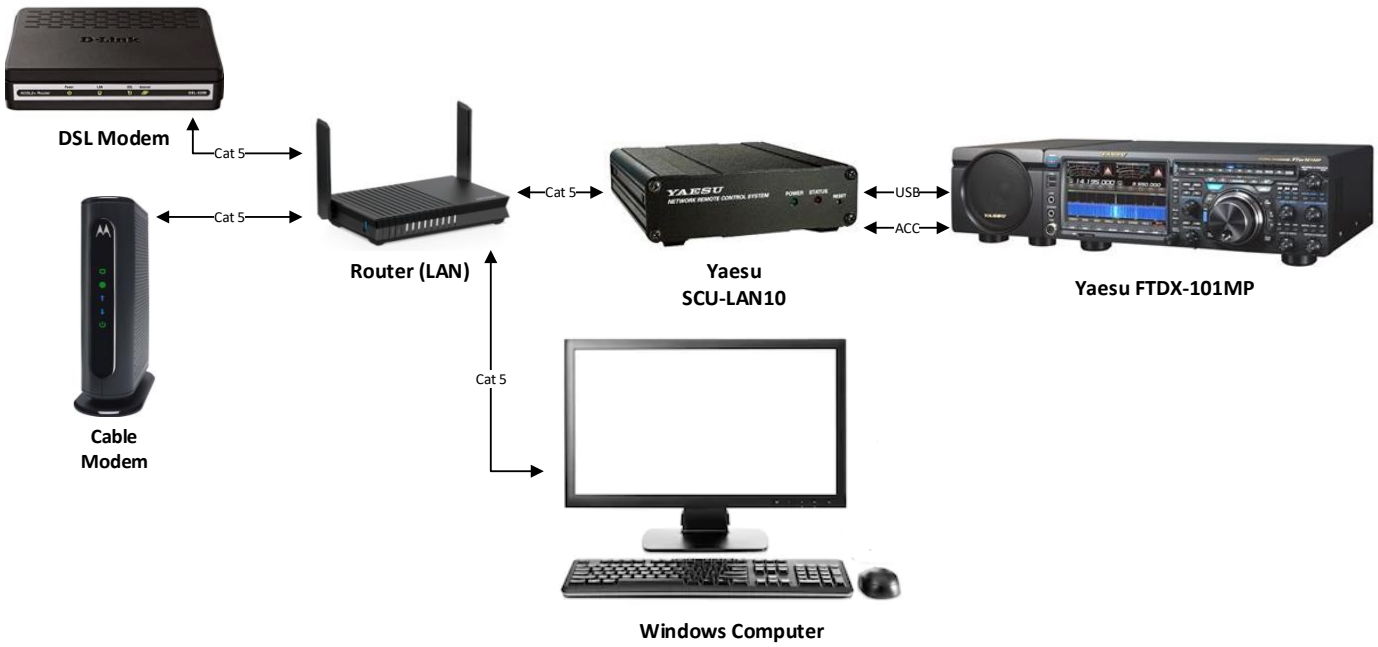
Additional information for the Yaesu SCU-LAN10 Remote Control Interface reviewed in the May 2021 Issue of *QST* by Terry Glagowski, W1TR

The Yaesu SCU-LAN10 is an accessory device that allows remote operation of the Yaesu FTDX101 series and FTDX10 transceivers. By "remote" we mean ***both*** operation over a Local Area Network (LAN) within a local site, ***and*** operation over a Wide Area Network (WAN) i.e., the Internet, at different parts of the country or world if the Internet performance is adequate. The SCU-LAN10 is connected to the transceiver by the USB and Accessory Jack Cables, and connected to the LAN via an Ethernet RJ-45 connection. The LAN, of course, is connected to the Internet via a DSL or Cable modem.



Operation

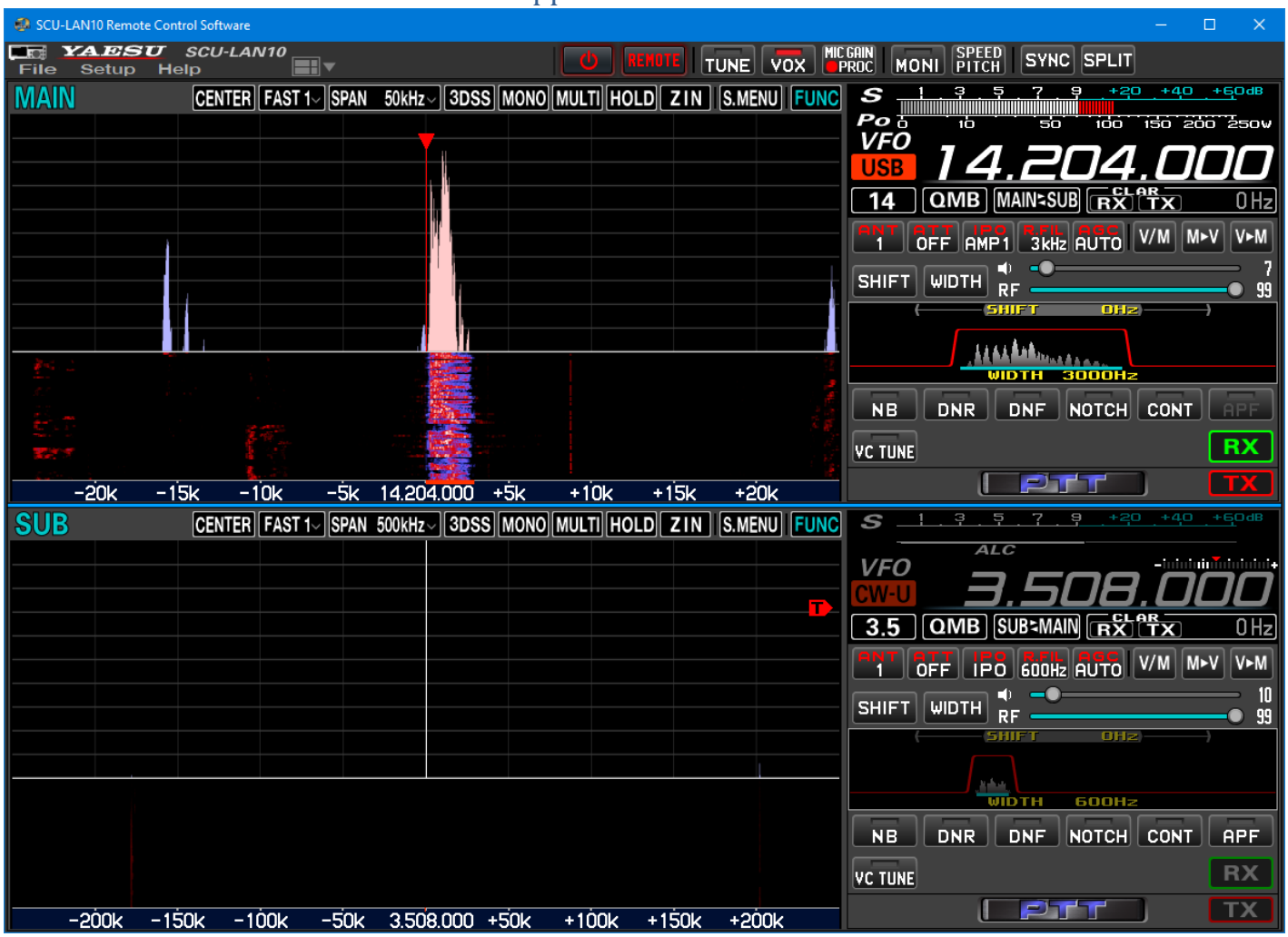
Before the SCU-LAN10 Remote Control Application can be used, the software must be downloaded and installed, and the SCU-LAN10 device must be configured.
See **Appendix A – Configuration of the SCU-LAN10 Remote Control Device** for details.

The SCU-LAN10 Remote Control Application must also be configured before use.
See **Appendix B –Configuration of the SCU-LAN10 Remote Control Software** for details.

To activate remote control, start the Yaesu SCU-LAN10 Remote Control Application.
If the SCU-LAN10 device and the Remote Control Application are properly configured,
clicking the **REMOTE** button will activate the system, and the transceiver control GUI will be displayed.
Clicking the **REMOTE** button again will stop operation.

The new version 2 SCU-LAN10 Remote Control Application supports transceiver Power ON/OFF now whereas version 1 did not. When REMOTE is activated, the POWER on the transceiver is automatically turned ON.
The POWER can be toggled by clicking on the POWER GUI ICON.
If the REMOTE is deactivated with the POWER ON, it remains ON until manually turned OFF.

GUI of the SCU-LAN10 Remote Control Application



Detailed Operation

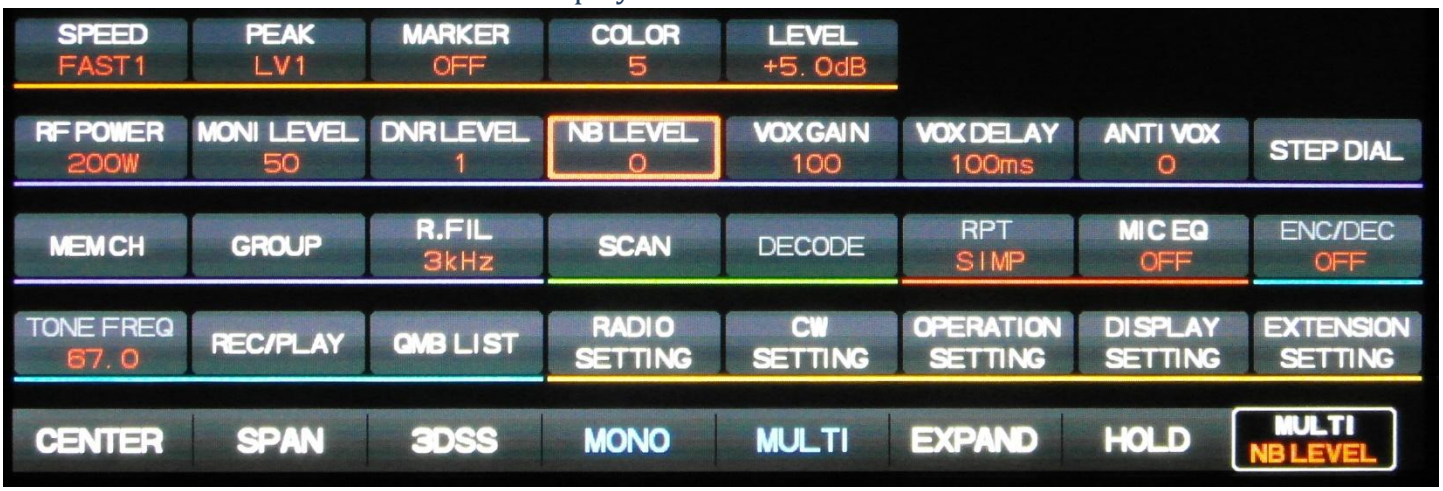
Detailed operation of the Yaesu transceiver via the SCU-LAN10 is described in the **SCU-LAN10 Operation Manual**.
By using the mouse, you can click on any of the GUI buttons to control the transceiver.

1) To change frequency:
    a. Hover over the MHz, the KHz, or the Hz part of the frequency display
    b. Use the mouse wheel to change that value.
2) Right click on the frequency display to change the tuning rate.
3) Click on the panadapter display to QSY to the frequency of a signal.
    a. Click on the center for non SSB modes
    b. click on the virtual carrier frequency for SSB
    (lower side for USB, upper side for LSB).
4) Click on the mode button to display the mode choice.
5) Slider controls are available for audio and RF gain.
6) The full function menu can be accessed using the **FUNC** button, but it is limited to 15 of the 37 functions available on the FTDX-101MP display.
7) the scope display functions are accessed using the **S.MENU** button.

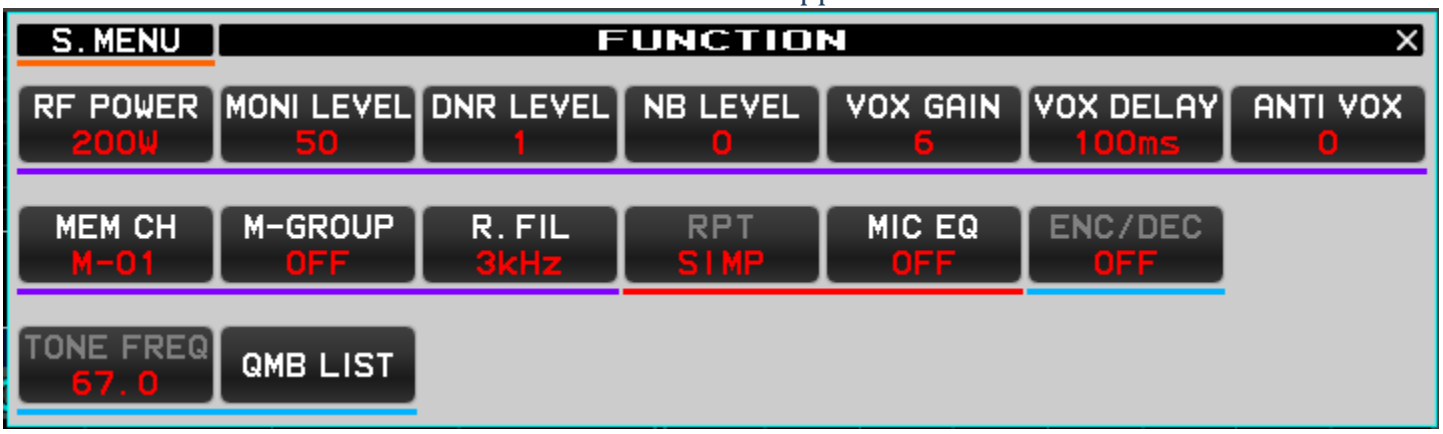
FUNC MENU

The SCU-LAN10 Remote Control Application GUI does ***not*** allow access to the full FUNC menu available on the display of the transceiver.

FUNC Menu Available in FTDX-101MP Display



FUNC Menu Available in the SCU-LAN10 Remote Control Application GUI



Only 15 of the 37 functions in the FUNC menu are accessible remotely.

Enable VOX Operation

An important menu item is the Operation Setting which allows setting which audio input activates VOX:
This is not available remotely. To make the settings needed for remote operation:

1. PRESS FUNC.
2. OPERATION SETTINGS
3. TX GENERAL
4. VOX SELECT-DATA
5. Press BACK or FUNC
6. RADIO SETTINGS
7. MODE SSB
8. SSB MOD SOURCE-REAR
9. REAR SELECT-USB
10. EXIT FUNCTION

Appendix A – Configuration of the SCU-LAN10 Remote Control Device

Before the Yaesu SCU-LAN10 device can be used for remote operation, it must be configured for the LAN environment to which it is connected. Configuration of the SCU-LAN10 can be a bit tricky, especially if you are not an experienced computer user. I kept notes on the steps I followed during the configuration process.
Fortunately, it only has to be done once.

To configure the Yaesu SCU-LAN10 device, you need to understand some basic networking and Windows System Administration concepts. You also need to have some information about your LAN router, including the LAN address and the External IP Address as seen from the Internet. The information below will help you navigate this process, but consult Windows Help, online sources, and colleagues for more help.

Configuration Steps

1) **Download Software**
2) **Install Software**
3) **Configure SCU-LAN10 Device**

Download Software

You must download the software from the Yaesu WEB site which can be found by doing the following:

1) Access the URL: www.Yaesu.com
2) Click on the FTDX101MP image in the list below.
3) Select the Files tab just above the FTDX101MP image.
4) At the bottom of the page there are a number of software items to download.
5) The last one named Network Remote Control System SCU-LAN10 Software is the one you need.
6) It is recommended that you also download the Installation Manual and Operation Manual listed just above.
7) It is further recommended that you download other manuals of interest for the FTDX-101 series transceivers.

URL:
Welcome to Yaesu.com

https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=102&encProdID=BA2F414449407A4D3D23461143F88429&DivisionID=65&isArchived=0

Install Software

The software download is a ZIP file which must be extracted. It is suggested that you move the ZIP file to a Downloads directory where it can be found later and not get mixed with other downloads. Right click on the filename in the File Explorer and select **Extract All .** After you do so, there will be a directory called SCU-LAN10_Software_V0100 (the V0100 version may vary).

Inside this directory are two installer files:

1. CP210xVCPInstaller_x64.exe for 64 bit Windows systems.
2. CP210xVCPInstaller_x86.exe for 32 bit Windows systems.

Double click on the one appropriate for your computer system and follow the directions in the installation process.

Two shortcut ICONs will appear on your computer desktop:

1. YAESU SCU-LAN10 Setting Tool
2. YAESU SCU-LAN10

The first is a tool to setup the SCU-LAN10 device, the second is the remote access software itself.

Configure SCU-LAN10 Device

Setup of the SCU-LAN10 is described in the Installation Manual is accurate but can be hard to follow.
The following steps need to be carried out:

1) **Determine the External WAN IP Address of Your Router**
2) **Determine the Internal LAN IP Address Range**
3) **Determine What LAN Address to Use for the SCU-LAN10**
4) **Restore Factory Settings of the SCU-LAN10**
5) **Connect your computer directly to the SCU-LAN10**
6) **Change the Network Properties of your Computer to Match the SCU-LAN10 Factory Defaults**
7) **Login to the SCU-LAN10 Setting Tool**
8) **Add a User Account**
9) **Set the SCU-LAN10 IP Address**
10) **Restore your Computer Network Properties**
11) **Connect Your Computer and the SCU-LAN10 to the LAN**
12) **Use the Setting Tool Again to Verify that the SCU-LAN10 is Set Properly**
13) **Install Port Forwarding Tables in your Router**

Determine the External WAN IP Address of Your Router

The **External IP Address** of your router is needed for others to remotely access your SCU-LAN10 and Yaesu Transceiver. If you have an registered Internet domain (i.e glagowski.org) then the DNS services will allow external users to find the External IP Address of your router. Otherwise, you will need to inform them of the External IP Address.

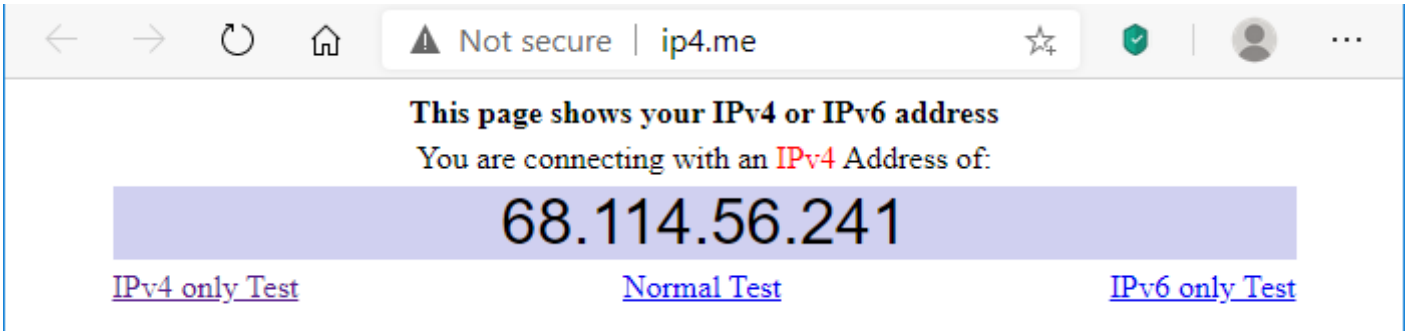
Most external IP addresses are dynamic, meaning that they can change from time to time but not often unless a power or Internet outage has occurred. If you have a Dynamic DNS Service, your router can be configured to automatically update after a change.

There are three ways to find the External WAN IP Address of your router

1) Use a WEB Browser and a WEB Page
2) Use the WEB Management Form of your Router
3) Use the Windows NSLOOKUP Command

Use a WEB Browser and a WEB Page.

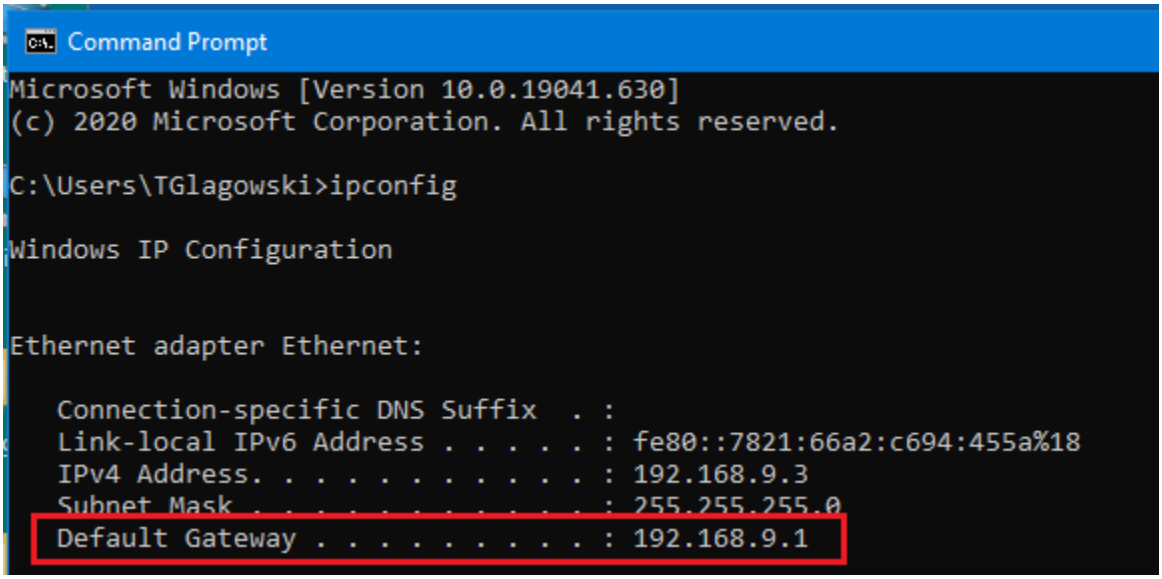
Open your WEB Browser and use the URL: http://ip4.me
The IPv4 address: 68.114.56.241 is shown below.
This will be used to login to your SCU-LAN10 remotely from another site.
There are several such WEB pages, try a Google Search: **Find my IP Address** or **What's my IP**



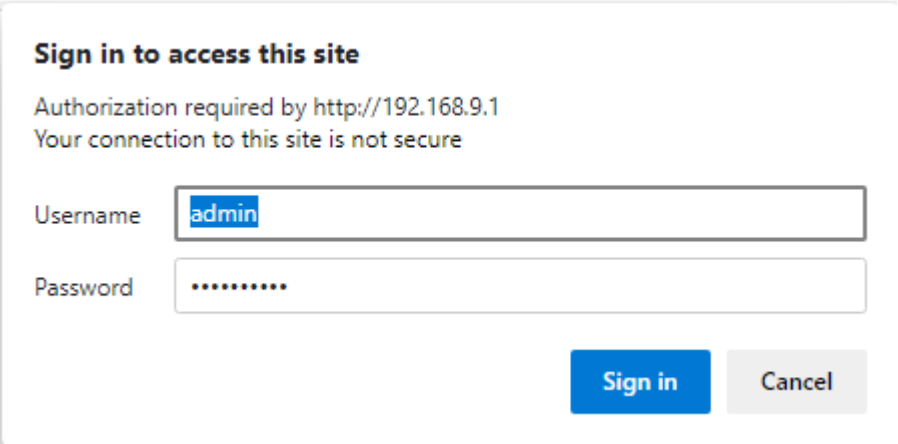
Use the WEB Management Form of your Router

Determine your local LAN address:

1) Use a Command Line to Internal IP Address of the Router, which is likely the Default Gateway



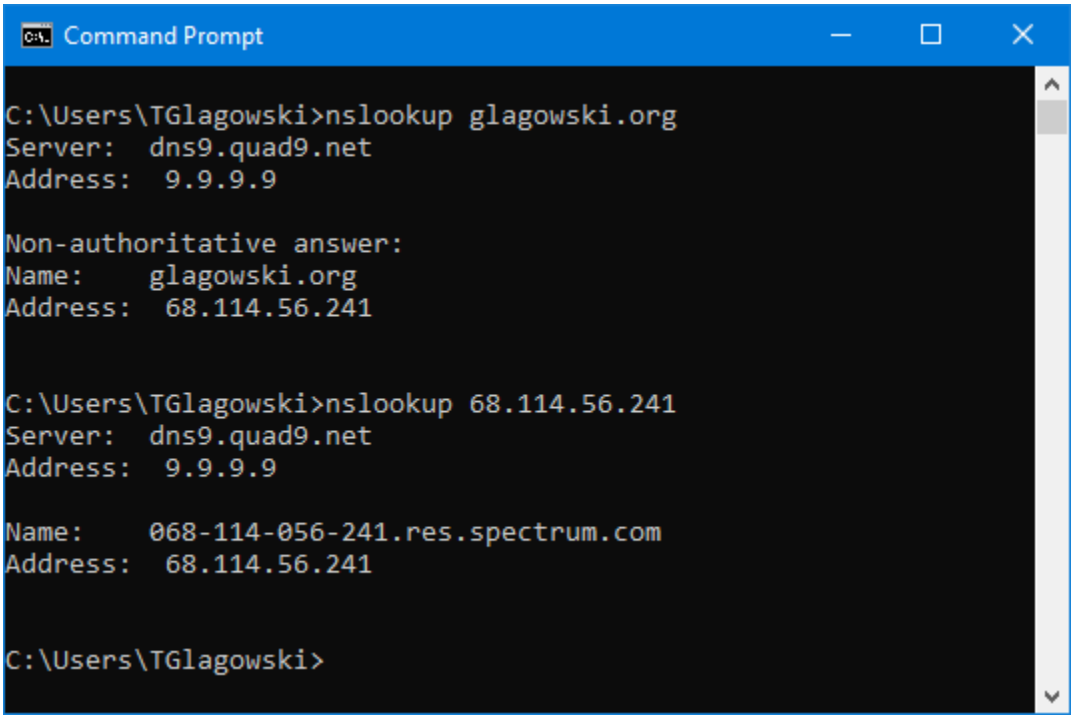
2) Use the Default Gateway IP Address in a WEB Browser to access your router WEB management page.
You will likely be presented with a Login Page requiring a Username and Password.
These can be reset to factory defaults using a hardware reset button on the router if you have lost them.



After you LOGIN to the router, a series of management pages become available.
This particular router is a Netgear WNDR3400 and the External IP address is available in the ADVANCED tab.
Each router is different so you will need to consult the user manual for your router.

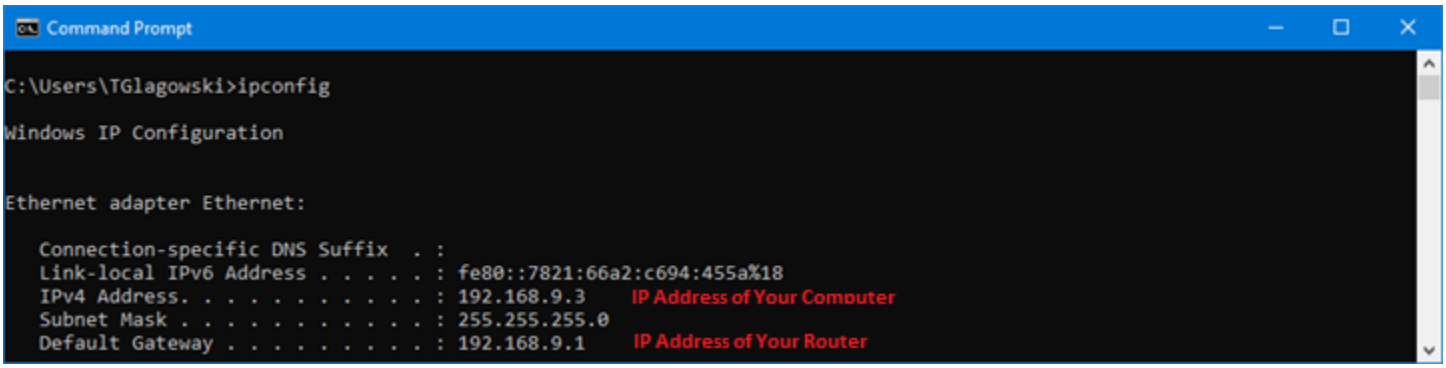
Use the Windows NSLOOKUP Command

If you know your Internet domain, use the **nslookup** command in a Command Line Window.

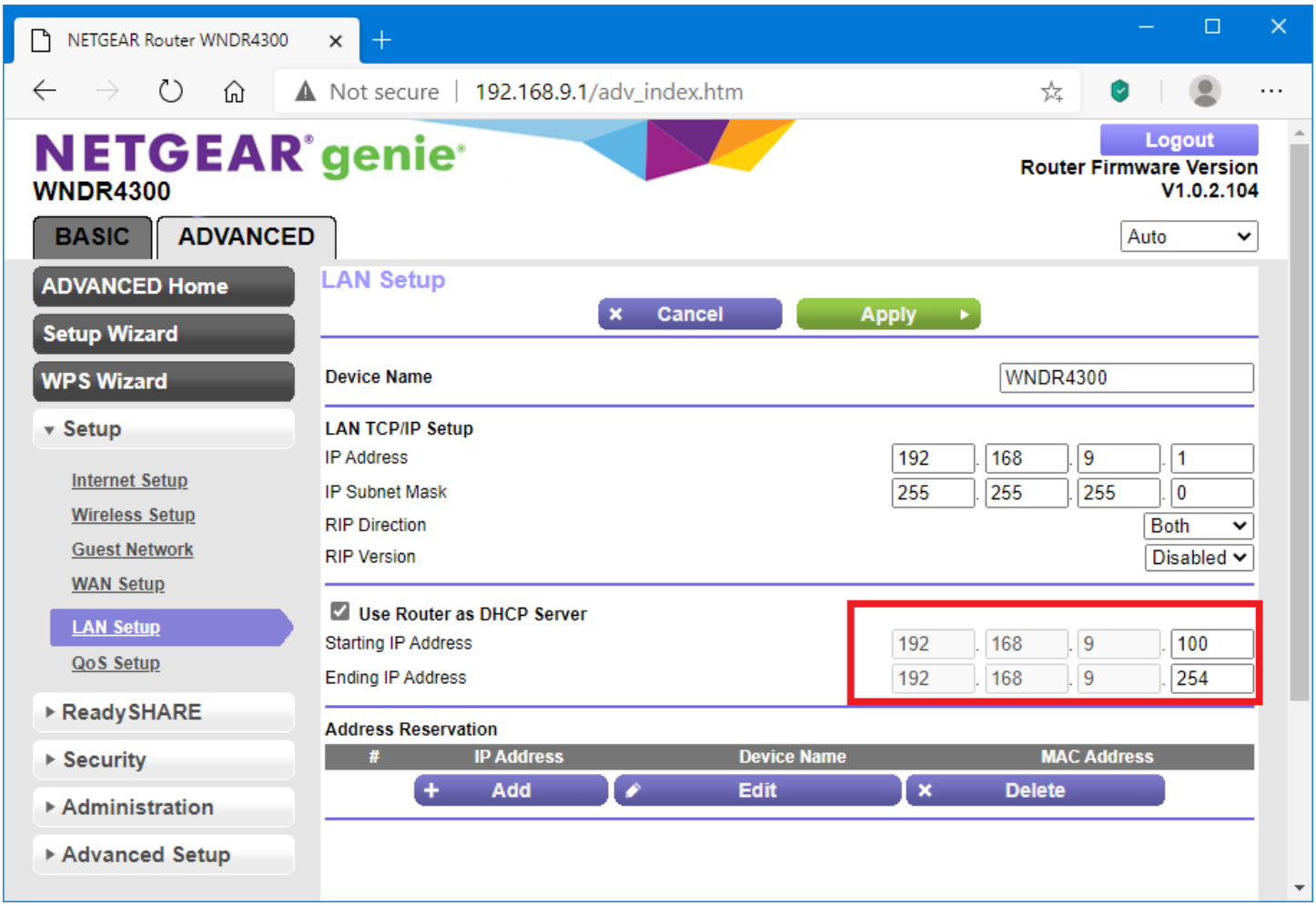


Determine the Internal LAN IP Address Range

You can find this information by using the Windows Command – **ipconfig**:
In my case, the LAN address is **192.168.9.x**, where x is 1 thru 254, somewhat different than the typical defaults.
You will be choosing an address in this range for the SCU-LAN10 unit.



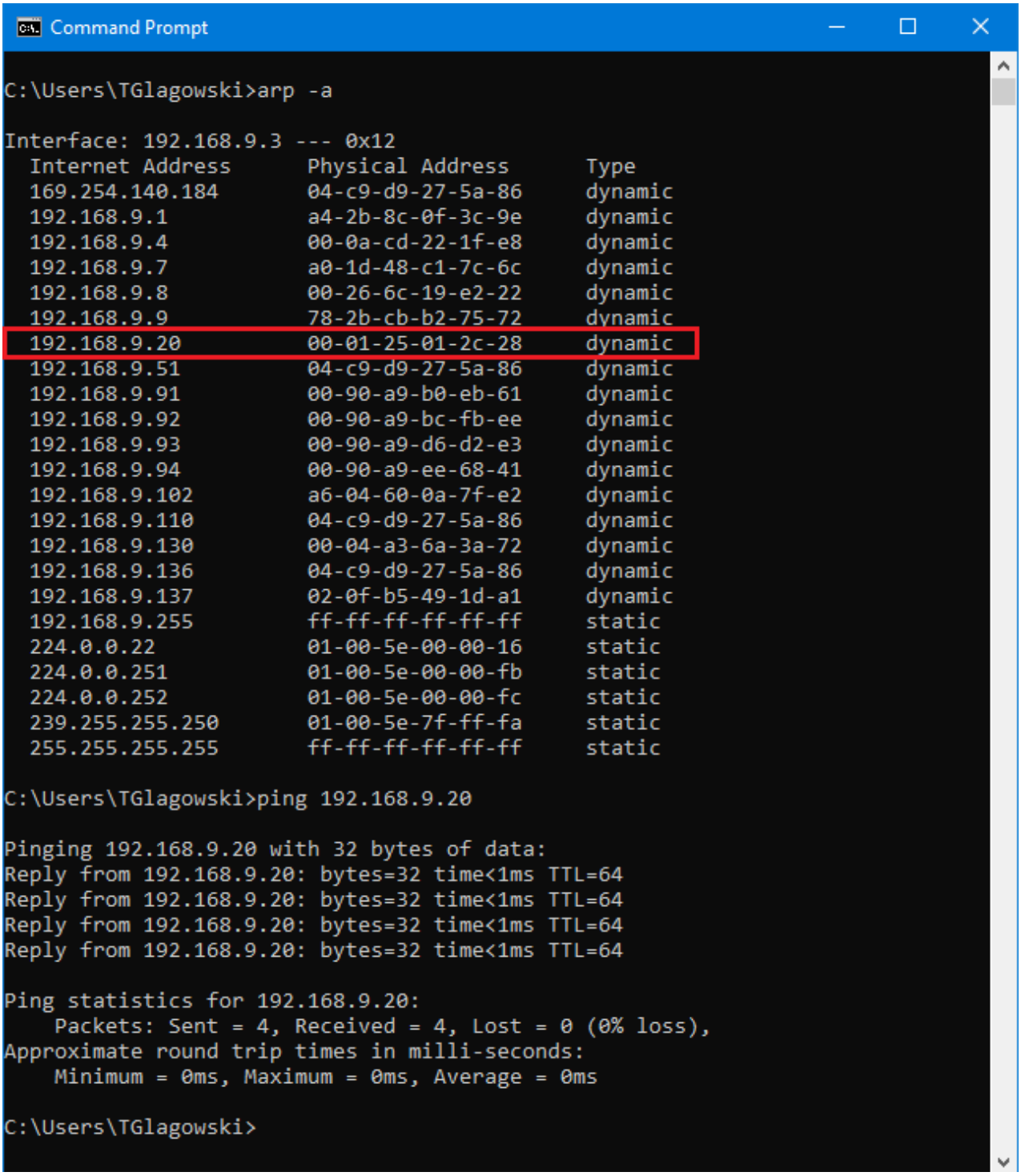
It is important to know which subrange of addresses are **dynamically assigned** by the router, and which are **statically assigned**. A choice from the **static address range** is required. In my case, the router is setup to assign dynamic addresses from **192.168.9.100** to **192.168.9.254** and assumes other addresses are statically assigned. This information can be found in the WEB Management Pages of the router.



Determine What LAN Address to Use for the SCU-LAN10

It is important to assign a static IP address to the SCU-LAN10 unit within the LAN Address Range that is different than any other device connected to the LAN, otherwise a conflict will occur.
Use the following Windows Command Line (**arp -a)** to determine what IP addresses are in use.
Choose an IP Address different from any listed.

NOTE: the SCU-LAN10 is already assigned to address 192.169.9.20 on my LAN.
NOTE: The command line shows all the 192.168.x.y addresses as dynamic, but this is not true.



Restore Factory Settings of the SCU-LAN10 Device

Since the SCU-LAN10 is designed to over an Internet WAN and not just over a LAN,
it must have a static IPADDR assigned, not a Dynamic (DHCP) addresss assigned by the LAN Router.
A static LAN IP Address is required for port forwarding / Network Address Translation (NAT).

The factory defaults are described in the SCU-LAN10 Installation Manual but are listed here for convenience:

IP Address: **192.168.49.1**
User: **defaultuser**
Password: **defaultuser**

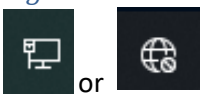
If you somehow make a mistake or have changed it previously, you can reset the SCU-LAN10 device to factory defaults using the reset button using a paperclip according to the directions in the installation manual.
Gently hold a paperclip, pin, or small pointed object on the **reset** button for a few seconds.

Connect your Computer Directly to the SCU-LAN10

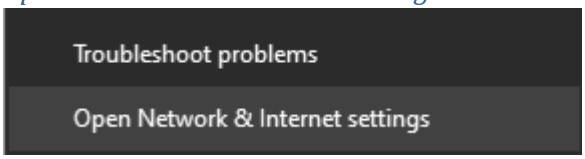
Connect the SCU-LAN10 unit directly to your computer.
The connections to the transceiver are required for power.

Change the Network Properties of your Computer to Match the SCU-LAN10 Factory Defaults

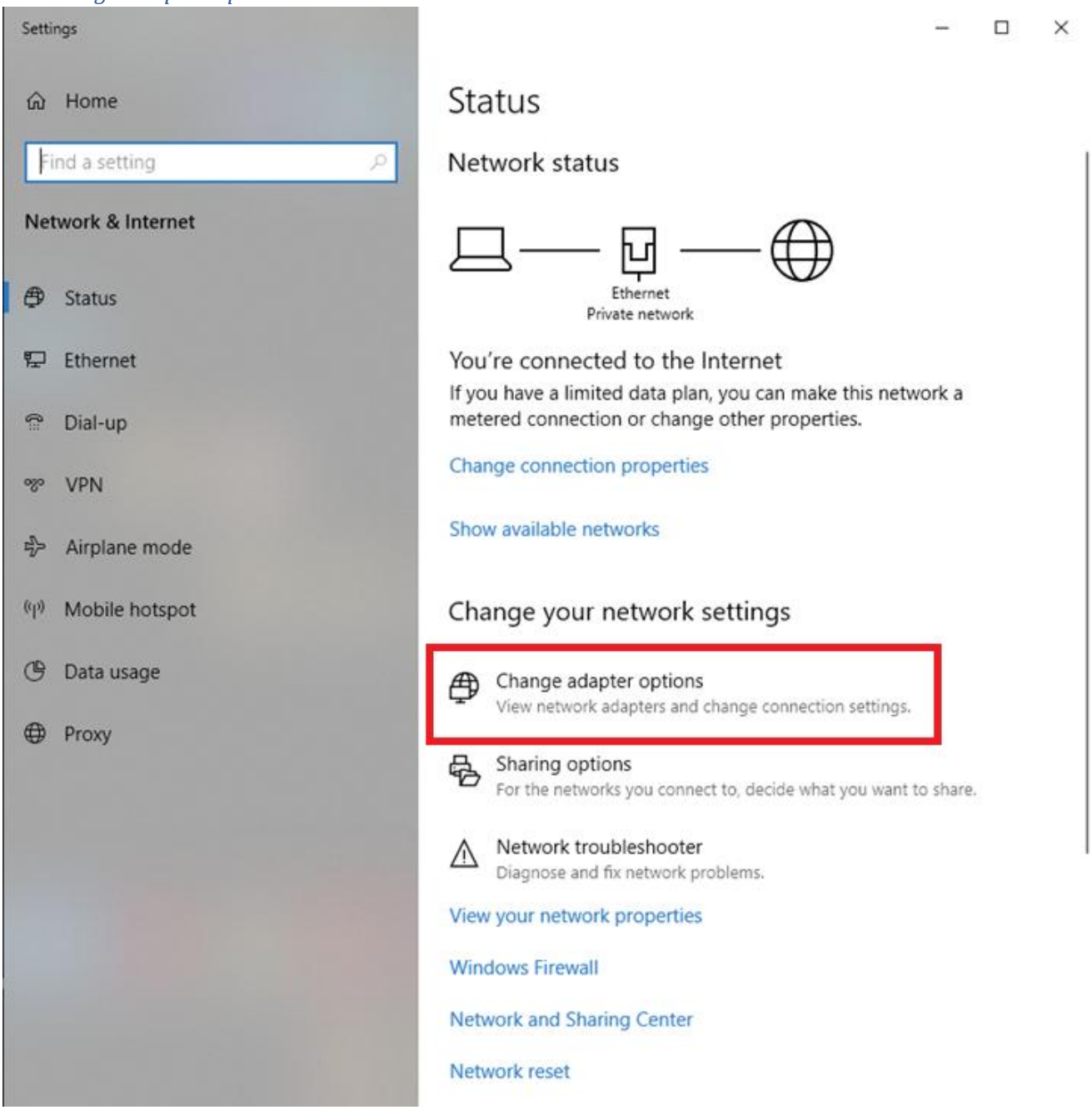
*Right Click on the **Network ICON** lower right of the screen*



Open Network and Internet Settings

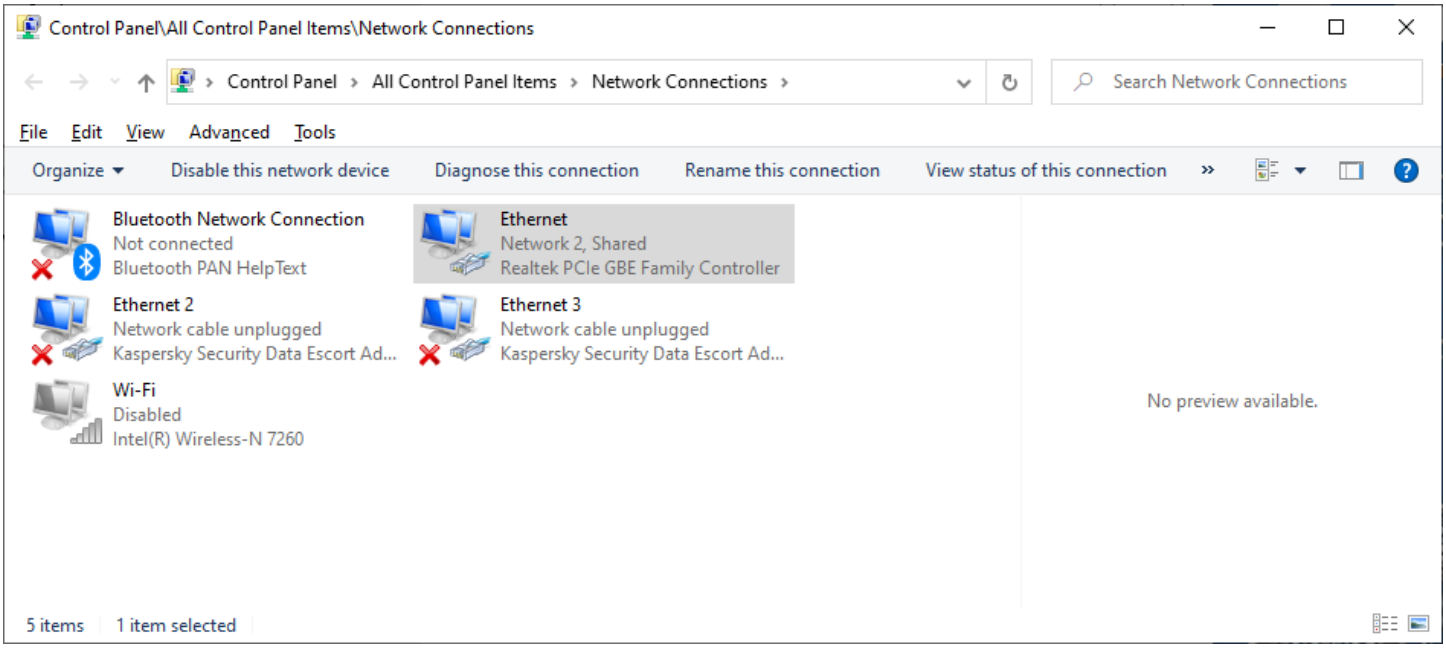


Use Change Adapter Options

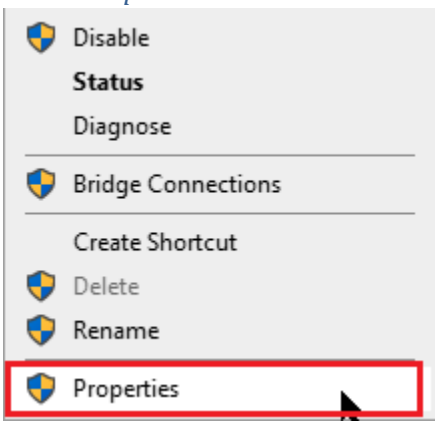


*Select the **Ethernet Adapter** and Right Click*

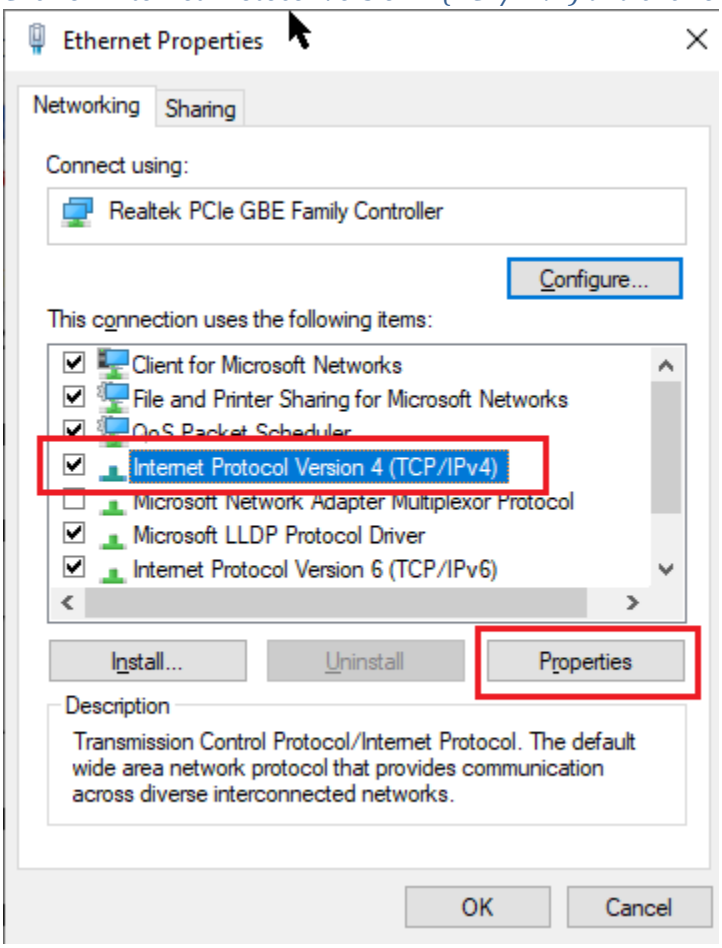
Note: the name may be different on your computer



Select Properties

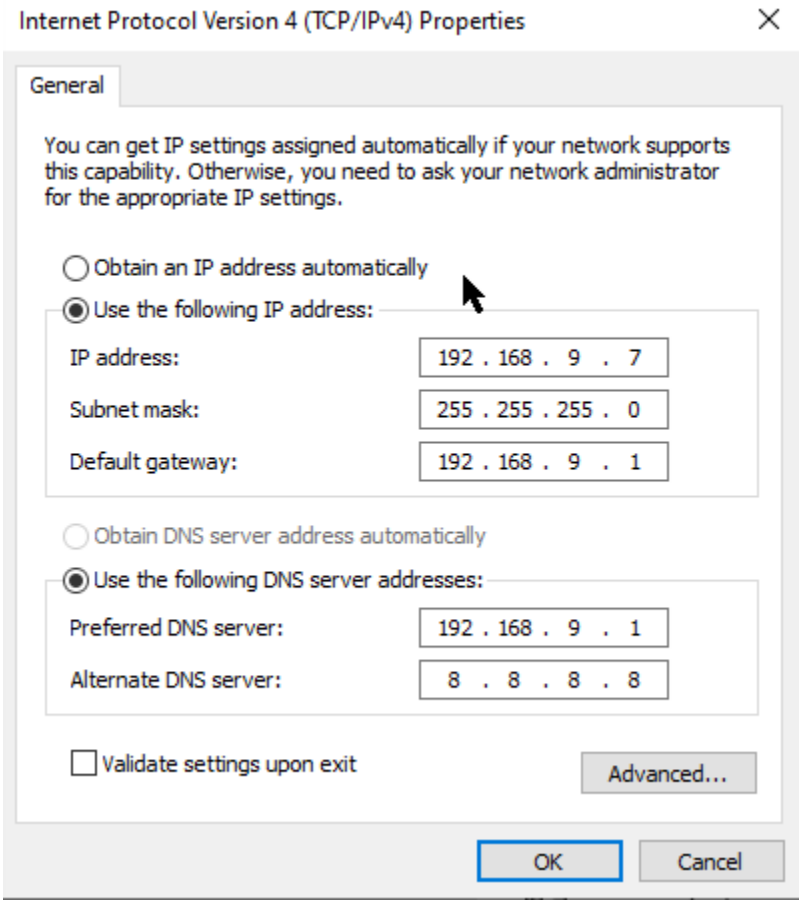


Click on Internet Protocol Version 4 (TCP/IPv4) and click on the Properties button.



Remember these setting.

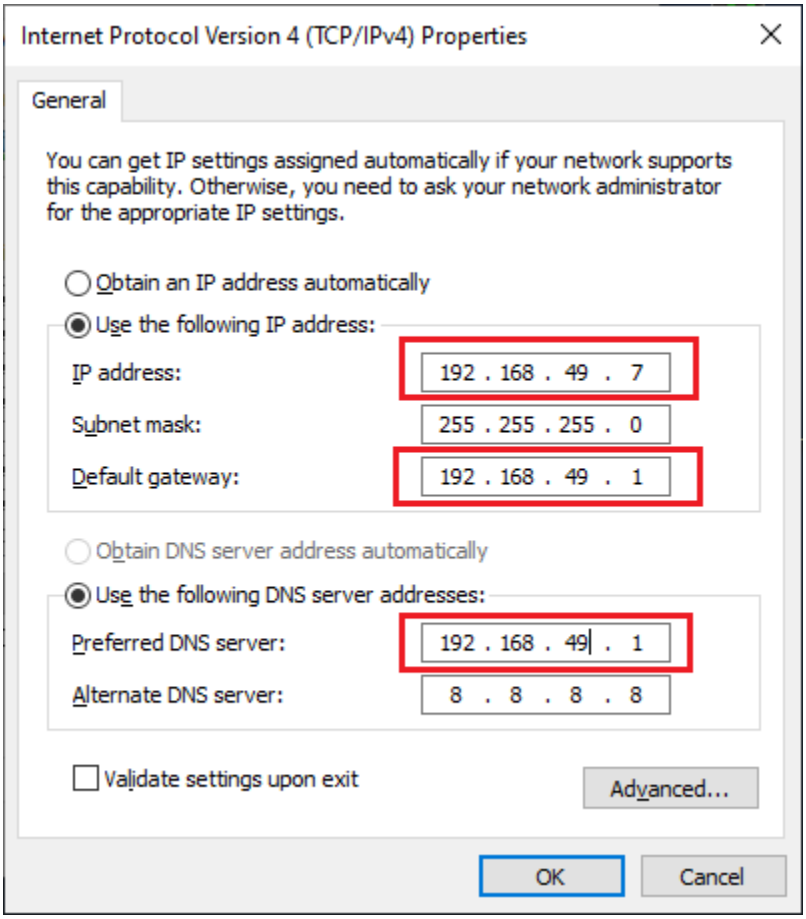
They will be restored after the SCU-LAN1 device is configured.



Change settings to match the SCU-LAN10 factory defaults

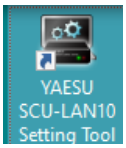
Click OK.

The choice of 192.168.49.7 is arbitrary, almost any value will do.



Login to the SCU-LAN10 Setting Tool

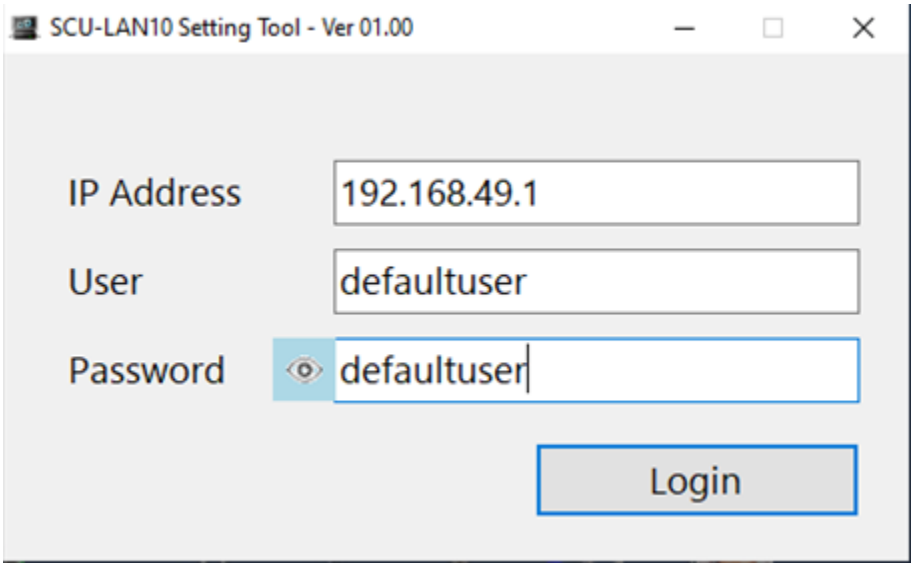
Start the Yaesu SCU-LAN10 Setting Tool by double clicking on the desktop ICON.



You will be asked for:

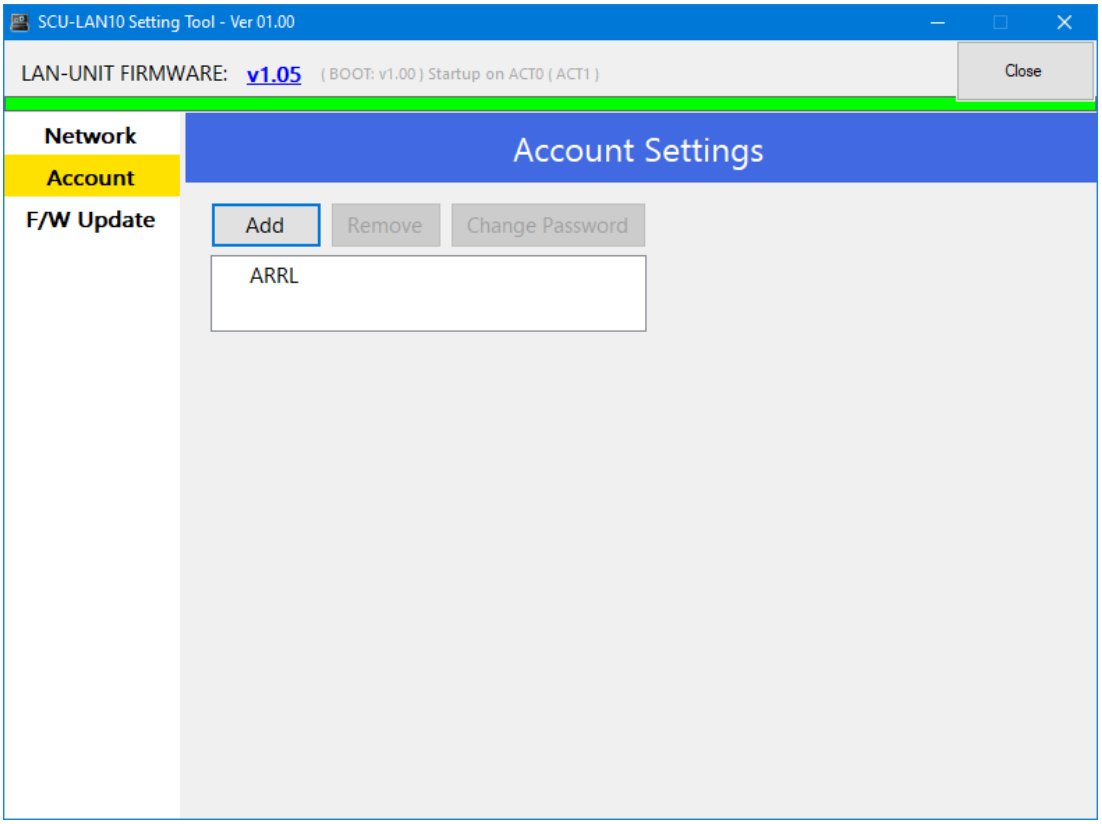
IP Address (use default: **192.168.49.1**)
User (use default: **defaultuser**)
Password (use default: **defaultuser**)

*Click **Login** to access the SCU-LAN10*



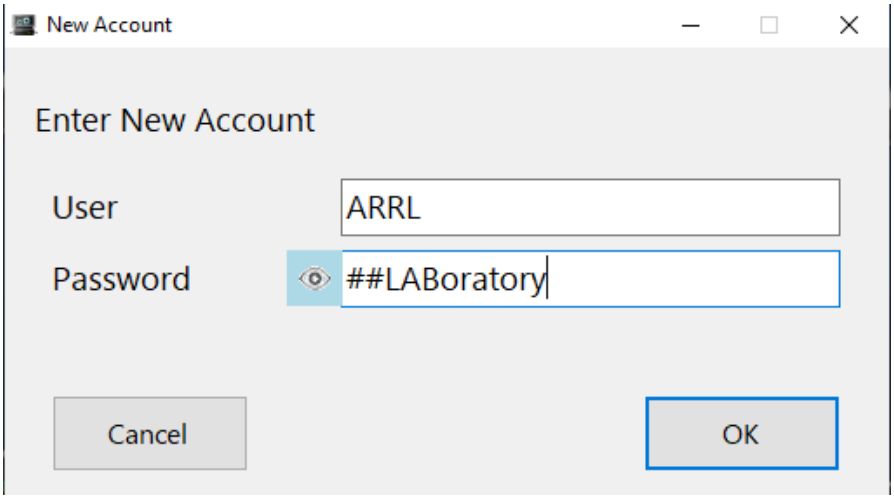
Add a User Account

Select the Account Settings tab in the SCU-LAN10 Setting Tool.
*Click the **Add** button*

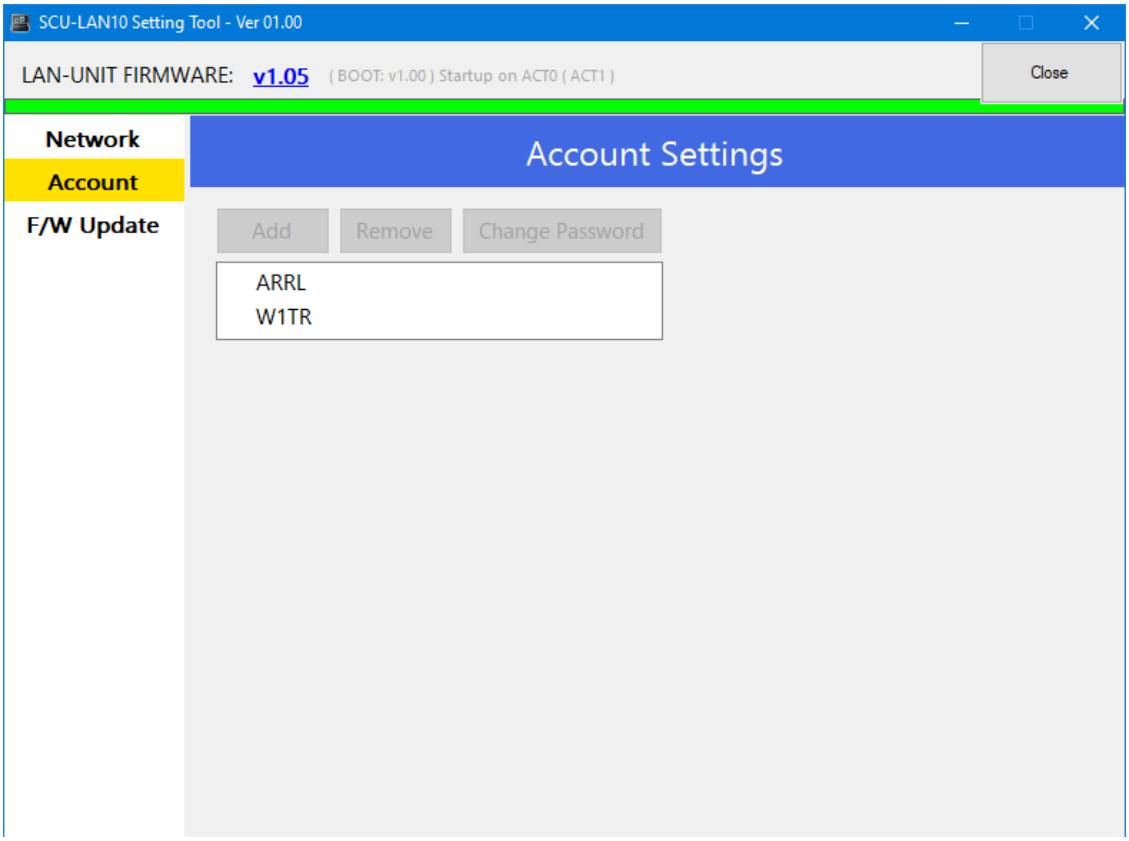


Add a User
User: ARRL
Password: ##LABoratory

*Click **OK***



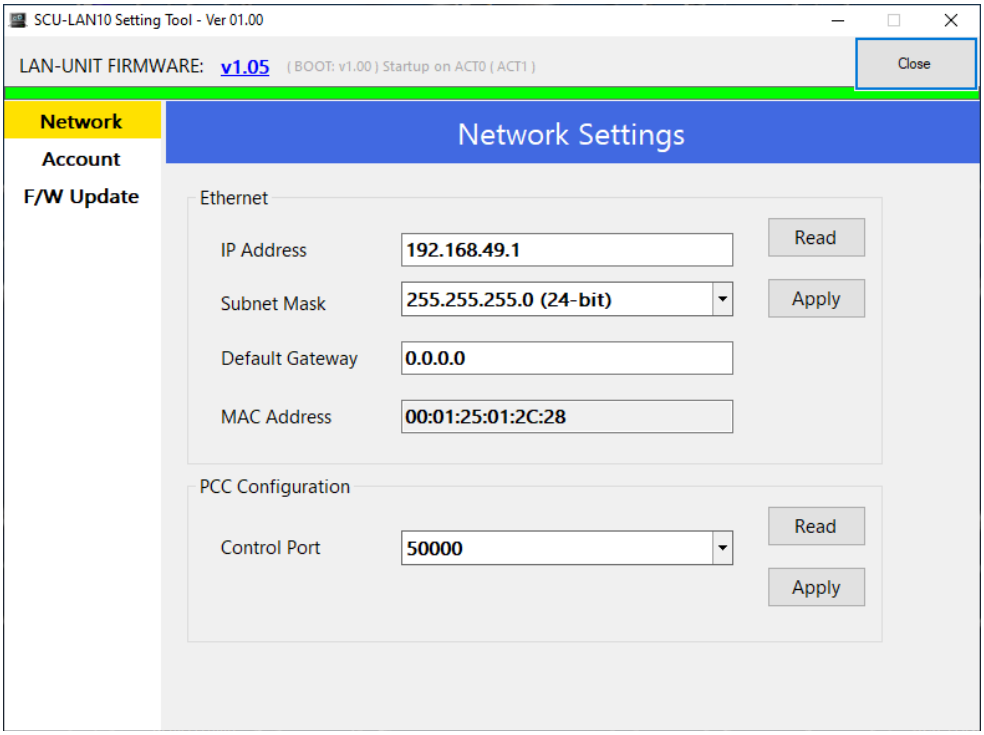
I also added an account for W1TR.



Set the SCU-LAN10 IP Address

*The **Network Settings** form will appear.*

The default IP address will appear.

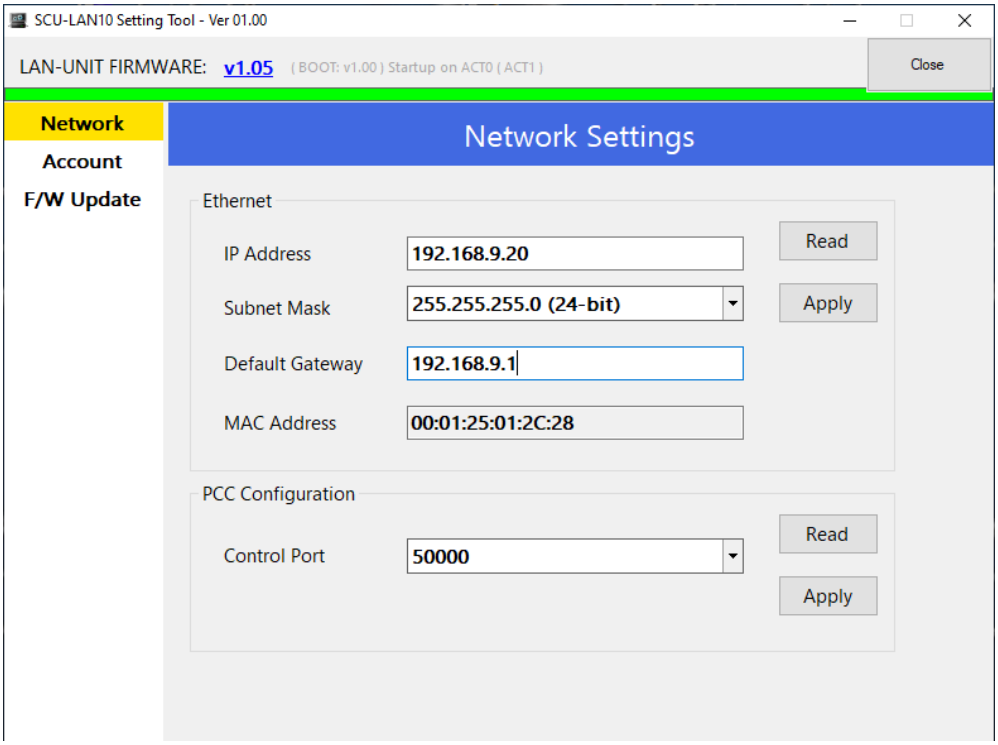


Change the IP Address to the one selected for your LAN

IP Address: 192.168.9.20 in this example

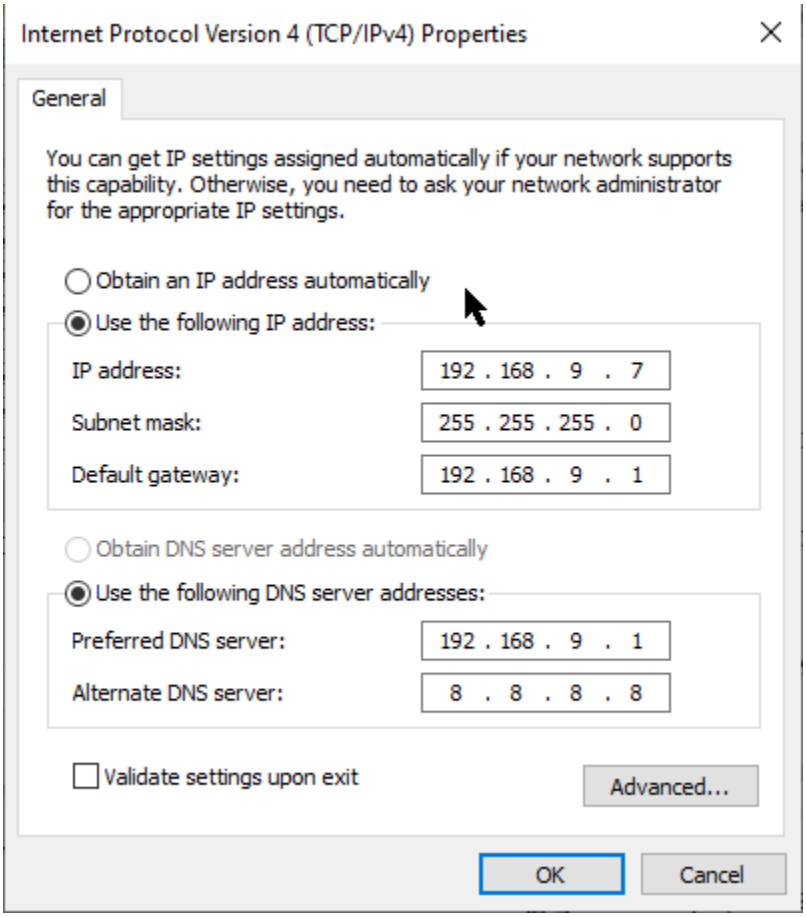
Default Gateway: 192.168.9.1 (router address)

Click **Apply**



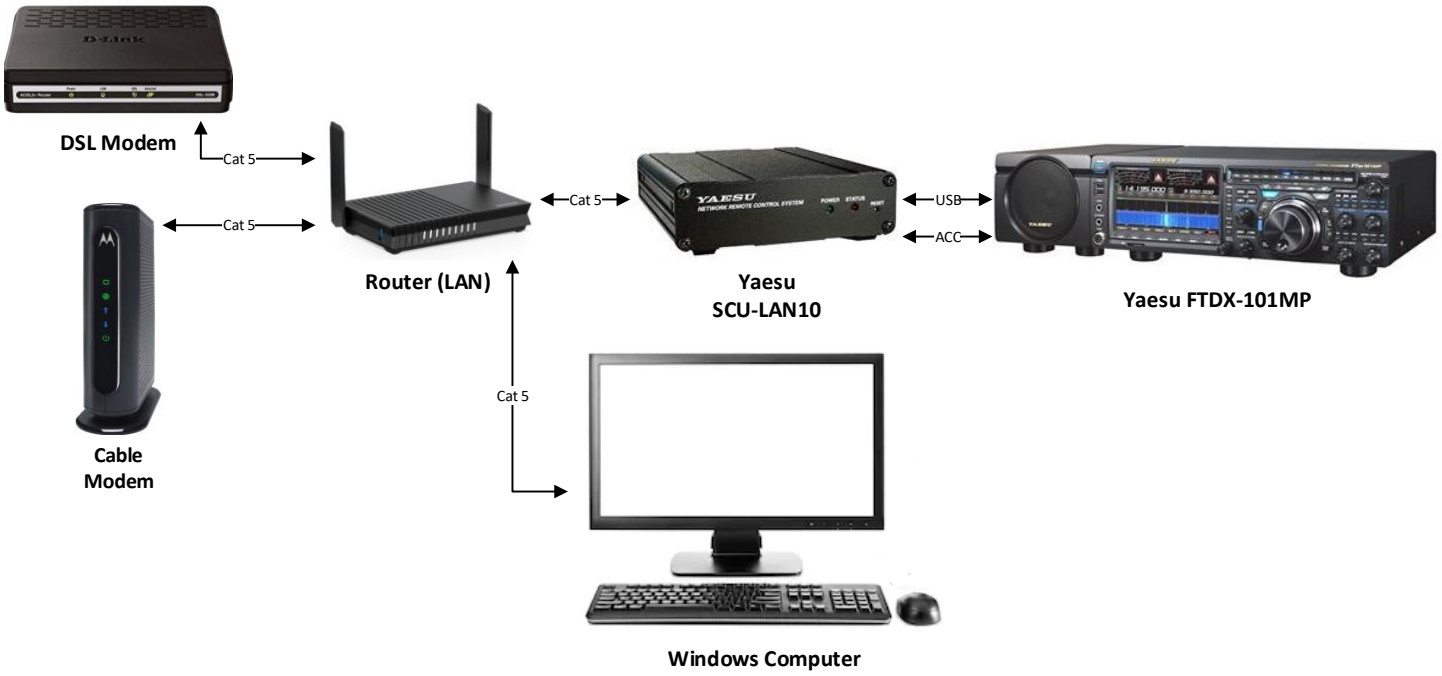
Restore your Computer Network Properties

Use the steps in **Change Network Properties of your Computer** and restore the settings.



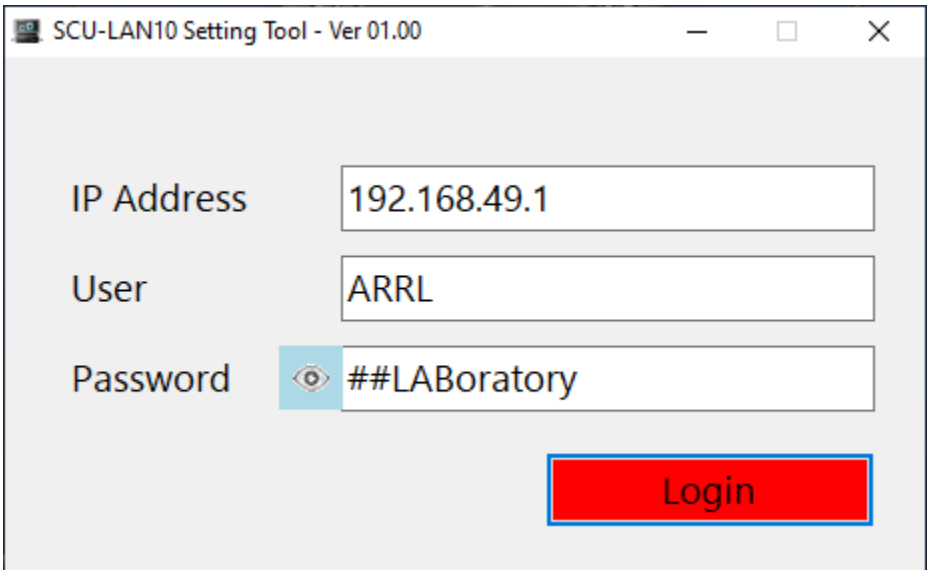
Connect Your Computer and the SCU-LAN10 to the LAN

The SCU-LAN10 and computer should now be connected to the LAN for normal operation.

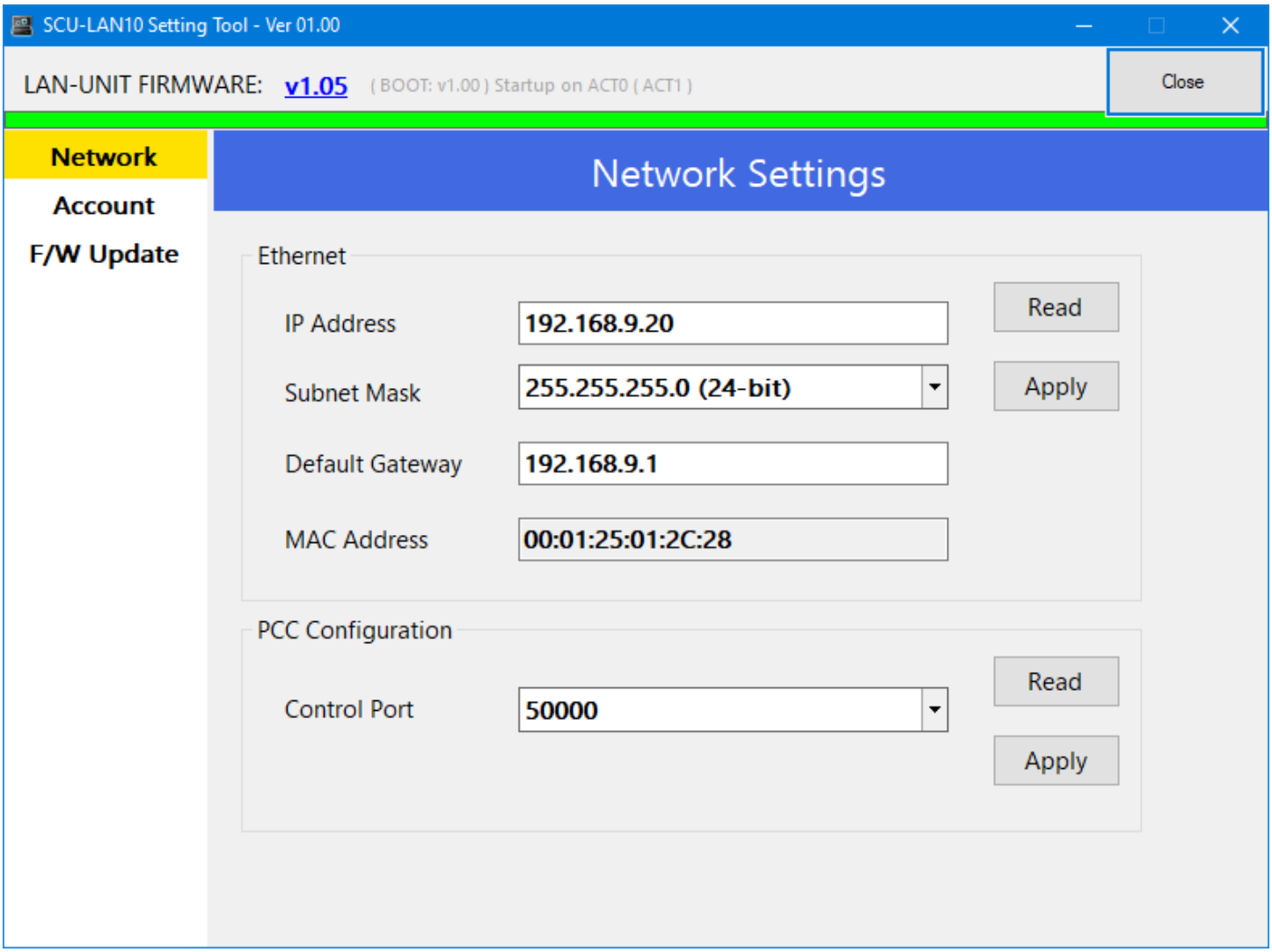


Use the Setting Tool Again to Verify that the SCU-LAN10 is Set Properly

Login Form, use the previously assigned User and Password, but the Local LAN IP Address.



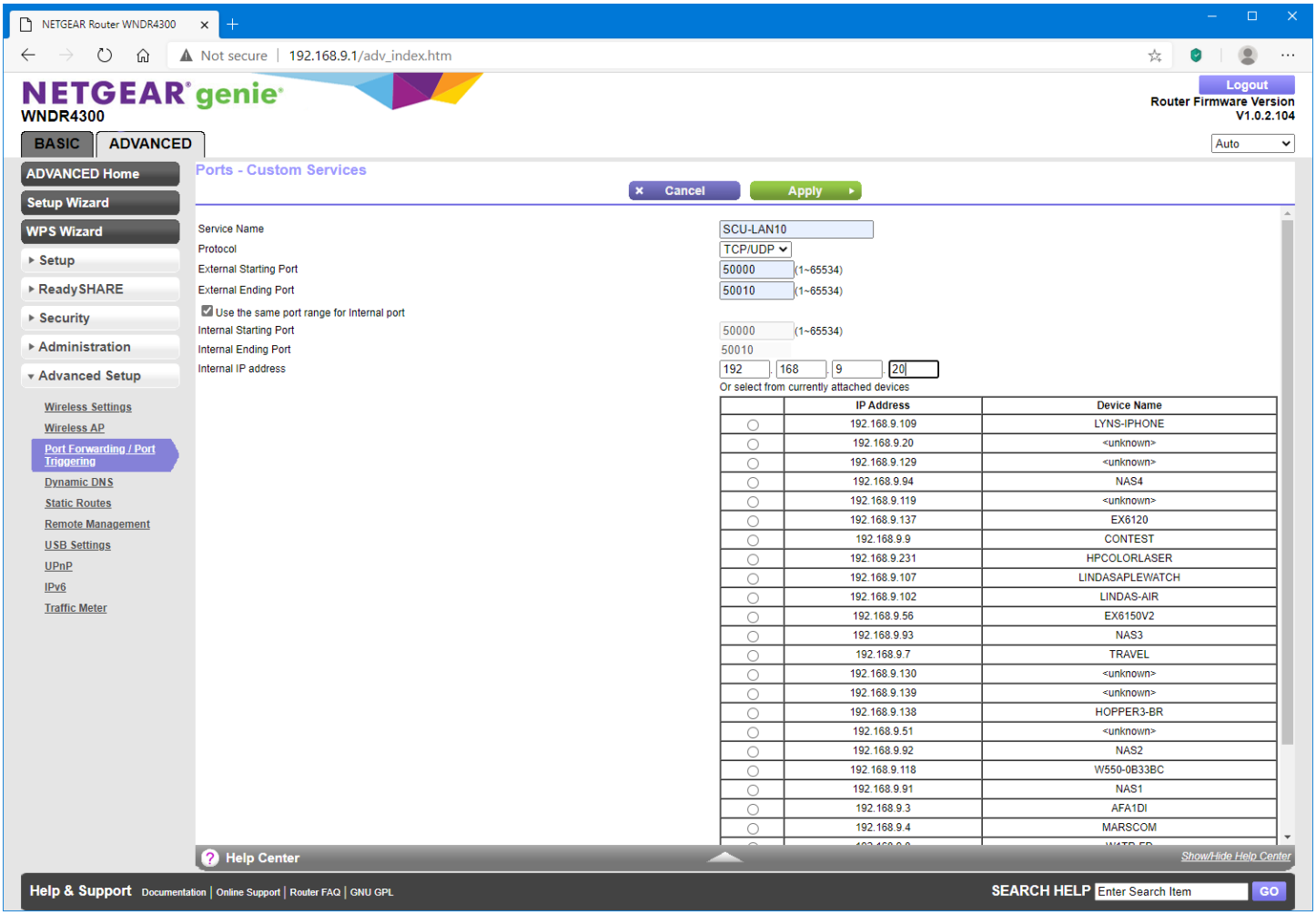
This verifies that the SCU-LAN10 device is properly connected to your LAN.

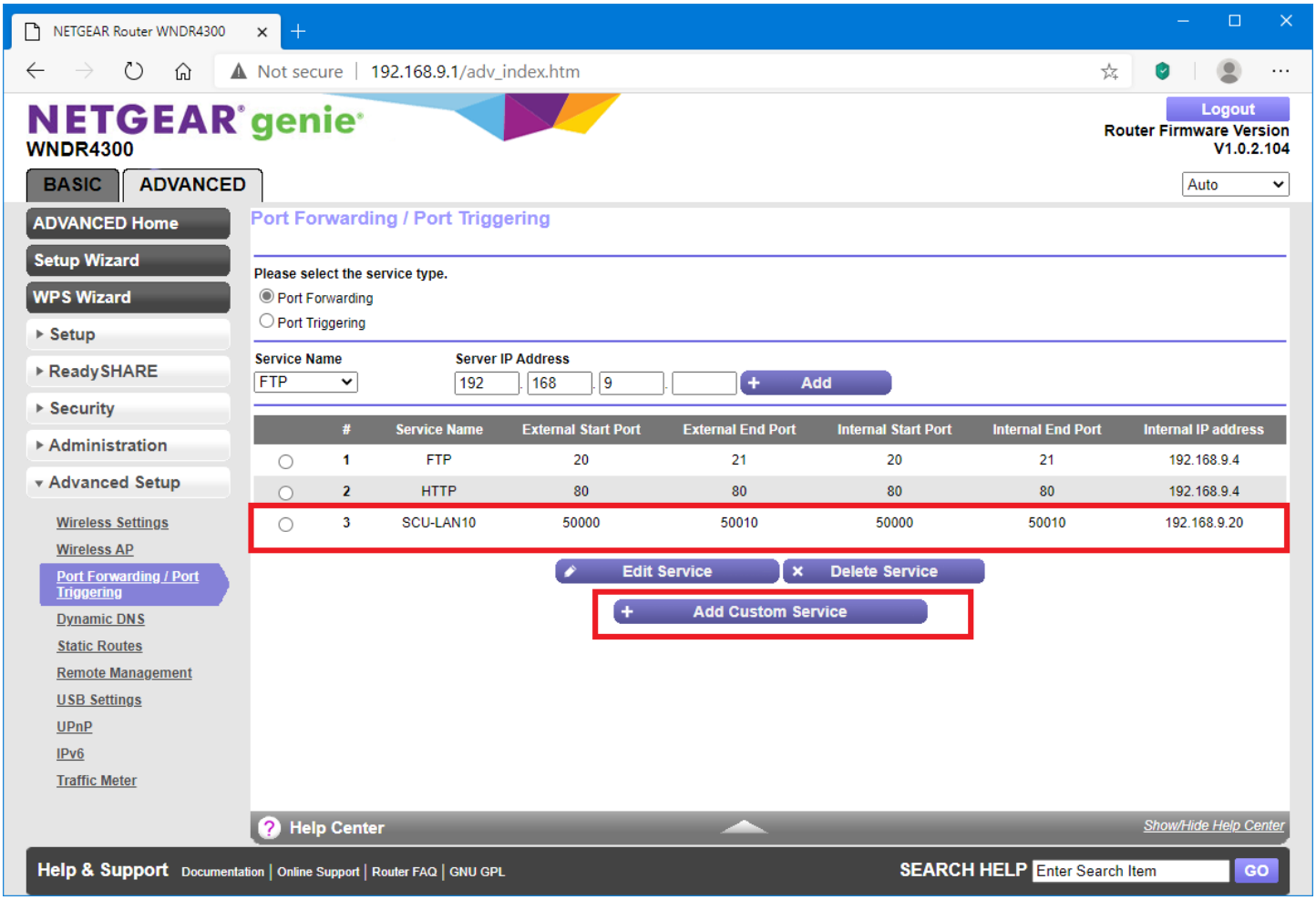


Install Port Forwarding Tables in your Router

Log into your router WEB management page and find the form(s) that edit(s) the Port Forwarding / Network Address Translation tables. Add a new service, e.g. SCU-LAN10, using the Add Custom Service button. Set the port range from 50000 to at least 50003 (I probably used overkill here by allowing 50000 to 50010). Route these ports to the SCU-LAN10 device at Internal LAN IP Address of 192.168.9.20.

Port forwarding means that when an external user uses the IP Address 68.114.56.241:50000 thru 50003, the router will forward these TCP or UDP packets to Internal LAN IP Address 192.168.9.20:50000 thru 50003.




NETGEAR Router WNDR4300
Not secure | 192.168.9.1/adv_index.htm
NETGEAR genie
WNDR4300
Logout
Router Firmware Version
V1.0.2.104
BASIC
ADVANCED
Auto
ADVANCED Home
Setup Wizard
WPS Wizard
Setup
ReadySHARE
Security
Administration
Advanced Setup
Wireless Settings
Wireless AP
Port Forwarding / Port Triggering
Dynamic DNS
Static Routes
Remote Management
USB Settings
UPnP
IPv6
Traffic Meter
Port Forwarding / Port Triggering
Please select the service type.
Port Forwarding
Port Triggering
Service Name
FTP
Server IP Address
192 . 168 . 9 .
Add
Service Name External Start Port External End Port Internal Start Port Internal End Port Internal IP address
1 FTP 20 21 20 21 192.168.9.4
2 HTTP 80 80 80 80 192.168.9.4
3 SCU-LAN10 50000 50010 50000 50010 192.168.9.20
Edit Service
Delete Service
Add Custom Service
Help Center
Show/Hide Help Center
Help & Support
Documentation | Online Support | Router FAQ | GNU GPL
SEARCH HELP
Enter Search Item
GO

Appendix B –Configuration of the SCU-LAN10 Remote Control Software

Before the Yaesu SCU-LAN10 device can be used for remote control, the software for configuring the device, and the software for remotely accessing the device must be downloaded and installed. Then the SCU-LAN10 device itself must be configured for your particular LAN. These topics are discussed in Appendix A.

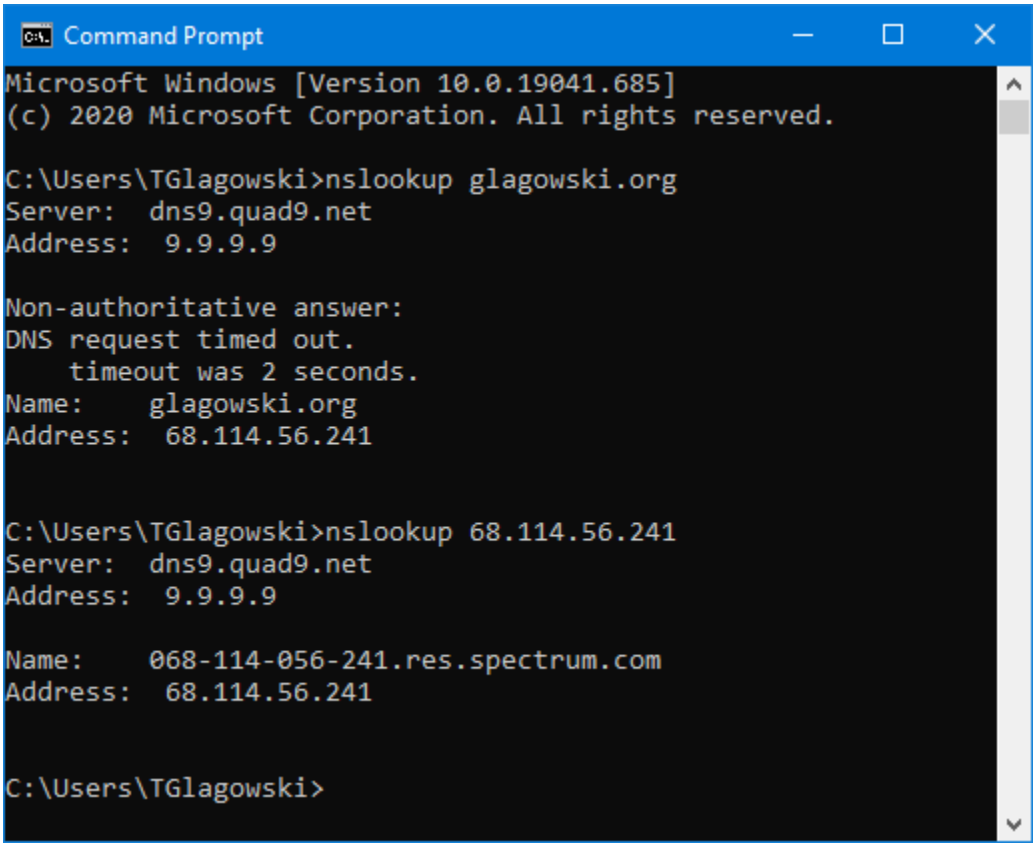
Once the software is installed and the SCU-LAN10 device is configured, the remote connection software must be configured during the first use of that application. This needs to be done ***each time a different*** remote SCU-LAN10 is accessed. The following steps must be followed:

1) **Determine the External IP Address of the Remote SCU-LAN10 Device**
2) **Configure the Remote Connection**
3) **Configure the Audio System**

Determine the External IP Address of the Remote SCU-LAN10 Device

If the remote SCU-LAN10 is connected to a router that has a registered **Internet Domain**, then the DNS service can be used to find its **External IP Address**. Use the Windows **nslookup** command to do so. If the LAN Network for the remote SCU-LAN10 does not have a registered Internet Domain, the remote operator will have to inform you what the External IP Address is.

In the following example, the SCU-LAN10 device is connected to the router at the **glagowski.org** domain.
This command prompt will find the External IP Address of that domain.
Then, applying the **nslookup** command to the IP Address found identifies the Internet Service Provider (ISP).
This is a residential account provided by the Charter Spectrum ISP.

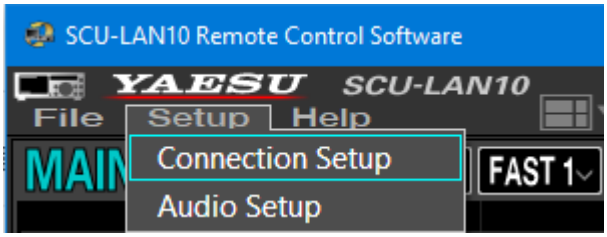


Configure the Remote Connection

Start the Yaesu SCU-LAN10 software by clicking on the desktop ICON.

You should see a GUI display similar to the one on page 2, except that the connection to the FTDX-101MP is not yet established.

Click on the **Setup / Connection Setup** menu item.



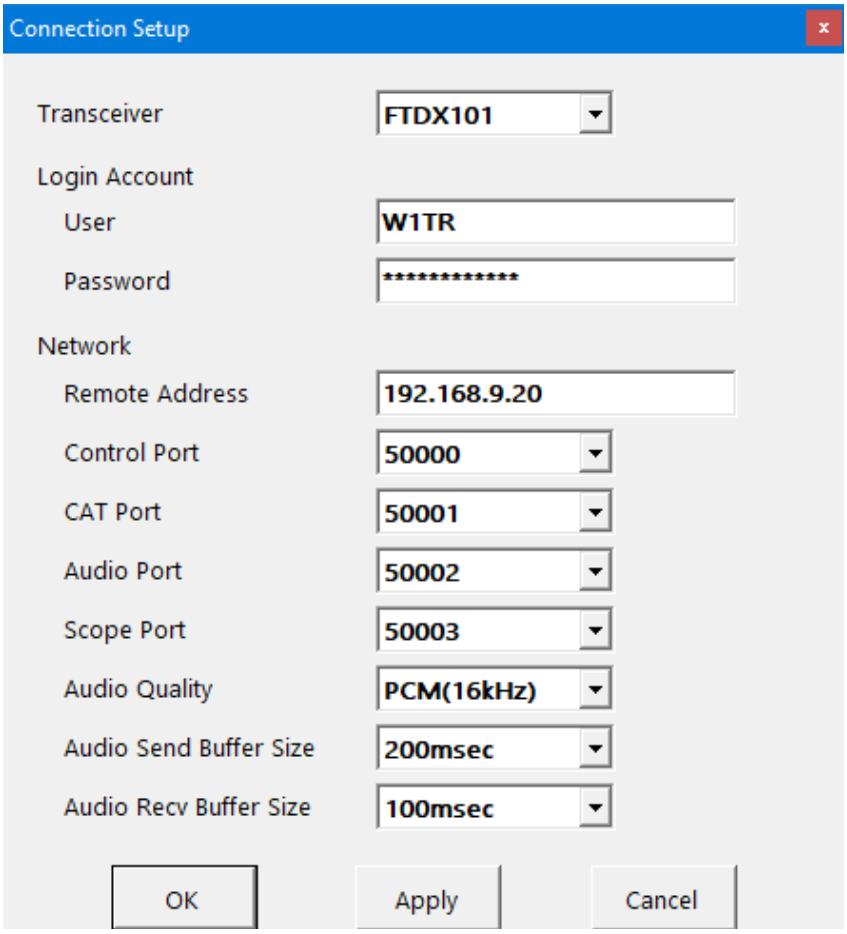
The Connection Setup form will be displayed, asking for:

1) The **User** name setup in the previous section
2) The **Password** setup in the previous section
3) The **Remote Address**
4) Do **NOT** change any of the other values

Connect to a local SCU-LAN10

If the SCU-LAN10 unit is connected to the same LAN as your computer, the **Remote Address** will be the local LAN address configured into the SCU-LAN10 connected to your LAN.
Use the value from the SCU-LAN10 setup procedure described in the Appendix A.
It will have the format **192.168.xxx.yyy**.

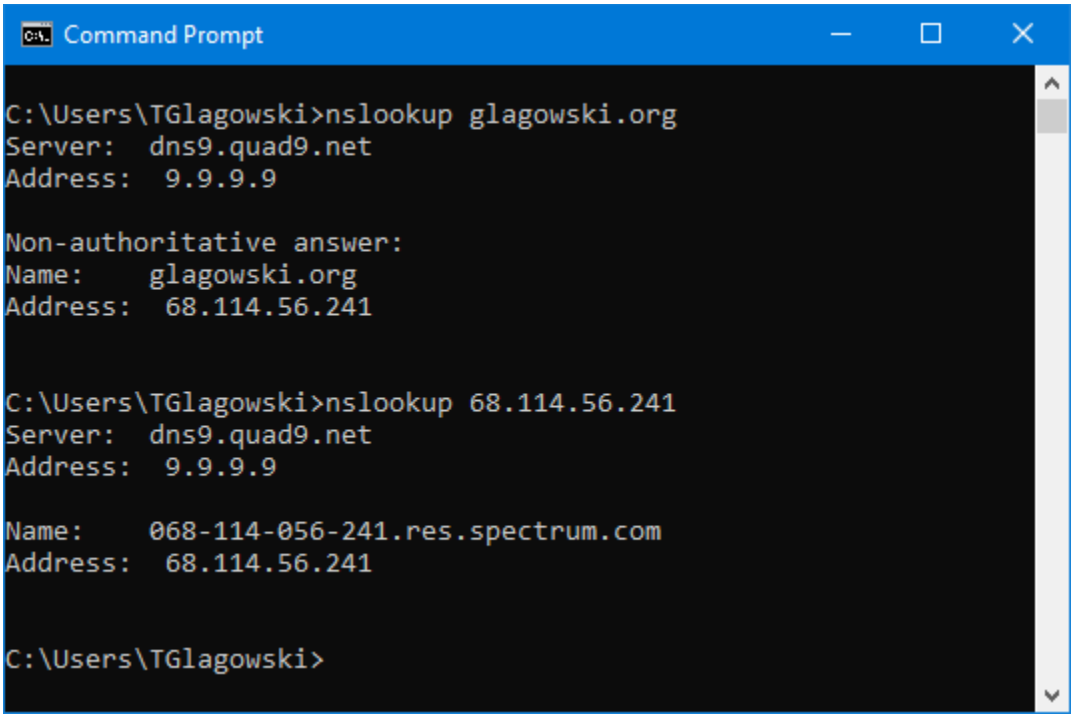
On my particular LAN, the LAN Address Range is **192.169.9.x**, and the local IP Address of the SCU-LAN10 is **192.168.9.20**.
Do not change any of the parameters except the **User**, **Password**, and **Remote Address**.
These values are determined when the SCU-LAN10 unit is configured (see Appendix A).



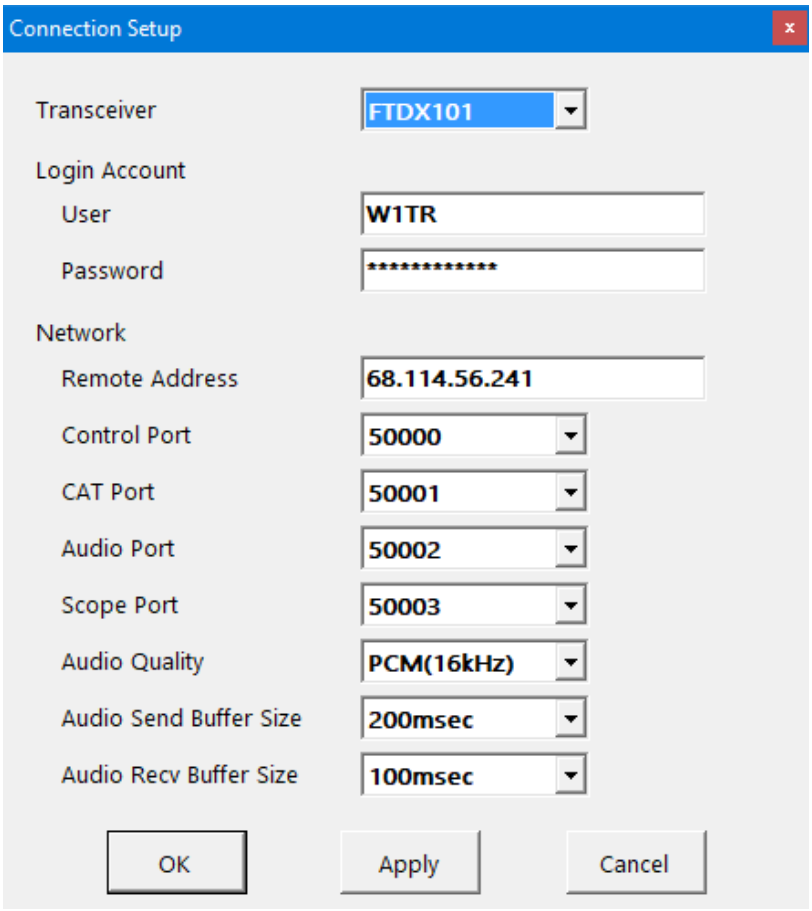
Connect to a Remote SCU-LAN10

If the SCU-LAN10 unit is located at a remote site, you must know the External IP Address of the router at that site.
If the site has a registered Internet domain, you can use the NSLOOKUP command to get the External IP Address.
If not, you must get this information by other means using Radio, EMail, telephone, US Mail, etc.

The following shows how to use the Windows **nslookup** command to get the IP Address of a domain.
My domain is Glagowski.org so using the **nslookup** command results in **68.114.56.241**, the external dynamic IP address (DHCP) assigned by Charter / Spectrum to my router.



The External IP Address of the remote system is used in the Connection Setup form when operating remotely.



Configure the Audio System

You will need to configure the audio input and output before using the SCU-LAN10 for remote operation.
I am using a USB headphone / boom microphone with the name USB Headset (Mpow HC).
The SCU-LAN10 Audio Setup allows setup of audio levels, but not the selection of the audio device.
It will use the default audio device setup in the Windows Sound System form
(use Open Sound System, both playback and recording)