Raspberry Pi WiFi Router Setup for Notaumatic Scoring System

Original version V1.1, Written by Roy Oostema, V2.0 by Risto Hölttä

Overview

This document describes how to configure a WiFi router for use with the NotauScore/Notaumatic scoring system. The original instructions are based on the TP-Link WR940N router, but the same principles apply to most routers.

The benefit of using an external router is that the WiFi range is greatly improved compared to the RPi internal WiFi. Both the Raspberry Pi 4 or 5 computer boards and the Raspberry Pi Zero models have an integrated PCB antenna that is not nearly as effective as an external antenna. Most of the communication issues in the Notauscore system are caused by the limited WiFi range.

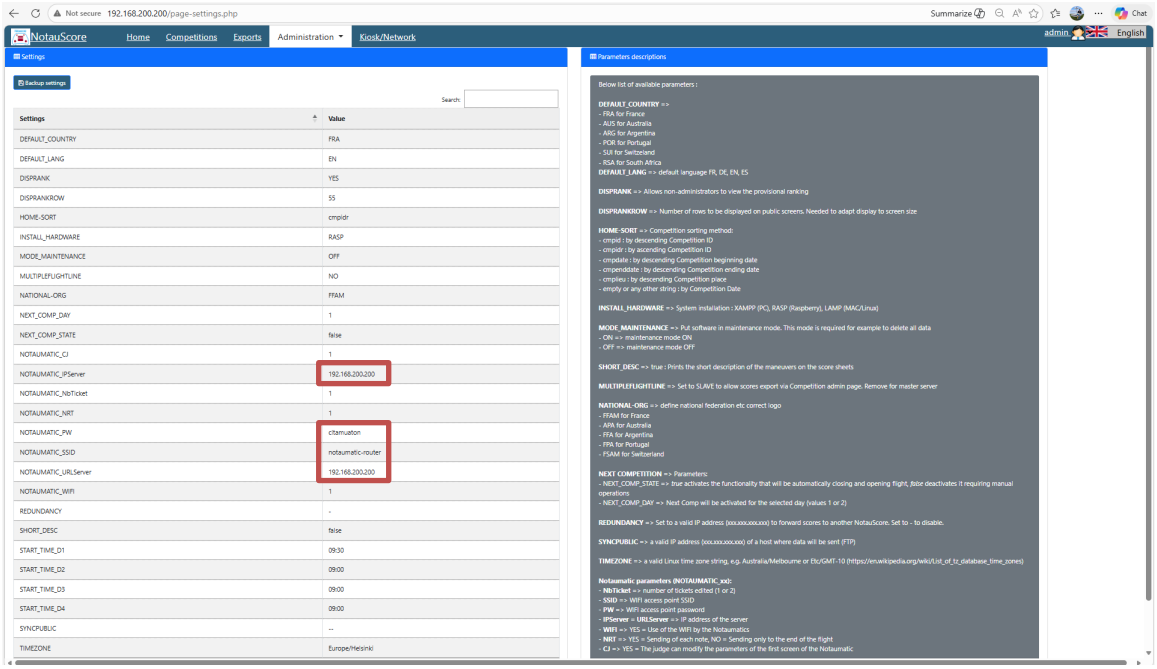
Wiring

The NotauScore server (Raspberry Pi) LAN port connects to one of the LAN ports of the router. Do not use the WAN port of the router since it is reserved for the Internet connection and has different functionality. Most often the WAN port is clearly marked as “WAN” or different color (blue is quite common).

In some cases, the router can detect WAN traffic automatically and configure one of the ports as WAN. In this case you can use any of the available ports to connect the RPi.

Operation

The easiest way to deploy correct settings to the NA devices is to set the parameters in Notauscore → Administration → Settings menu as follows:



The IP addresses should be already correct by default (192.168.200.200). The NOTAUMATIC_PW and NOTAUMATIC_SSID parameters should match those you set in the router.

All the parameters on this page will be transferred to the NA device if you go to “Maintenance” menu and select “Update params”. The NA device must be connected to RPi internal WiFi network before this for the parameter update to succeed. If all goes well, the NA will swiftly change to the router WiFi after 10 seconds or so.

It may happen that the RPi WiFi is too weak to operate reliably and in this case, you must update the SSID and WiFi password manually. After this change is done, the NA device will always use the router Wifi to communicate and other parameter changes as well as sequence changes and software updates work more reliably than with the RPi WiFi.

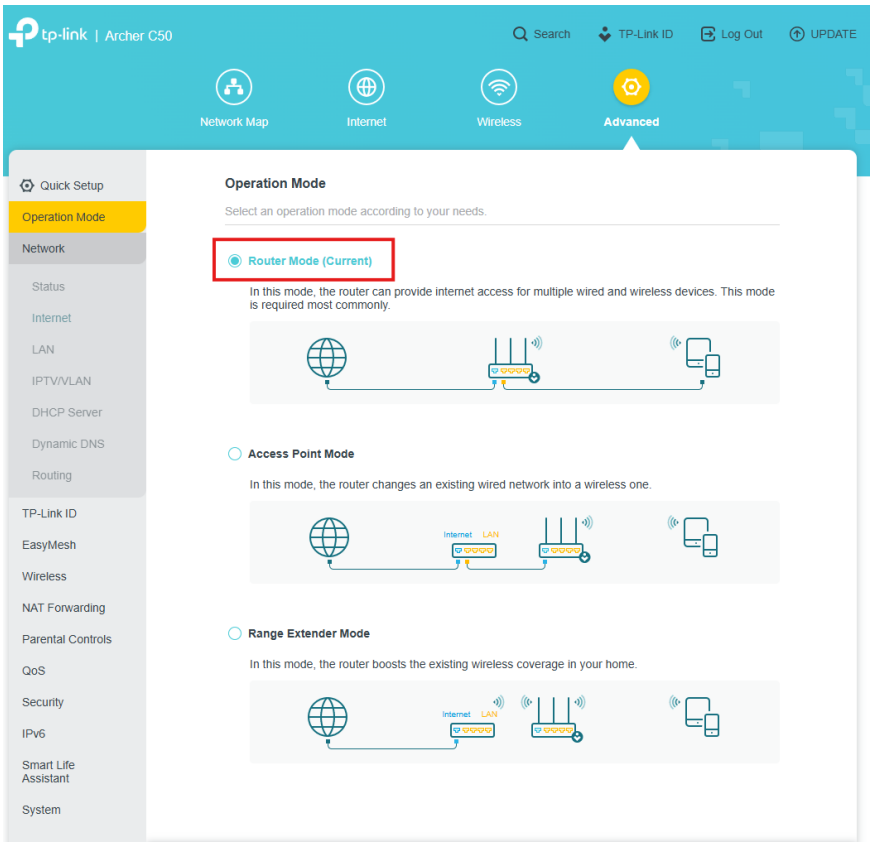
If something goes wrong, it is very easy to return to the default WIFI setup (Rpi). Just go to “Maintenance” menu and select “Restore def. params”.

Setting up TP-Link Archer C50 v. 6.20

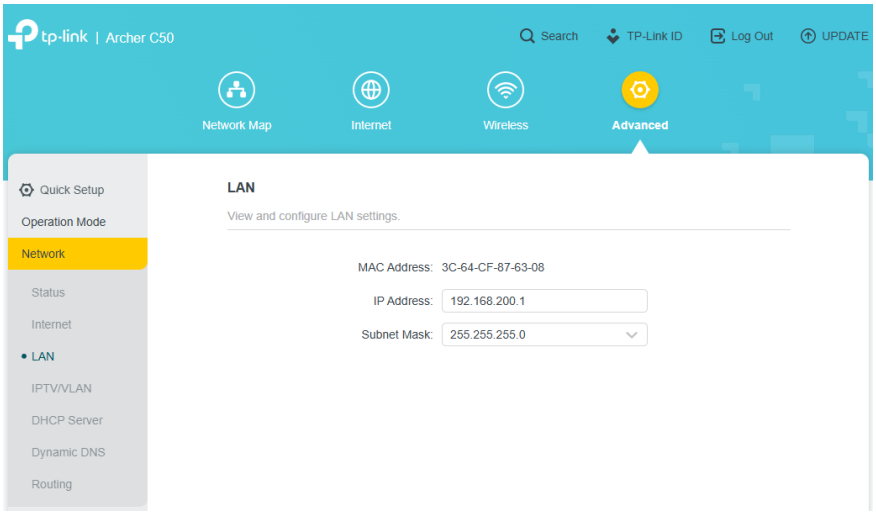
Follow these steps to set up the TP-Link C50 to your Notauscore system as a Wifi router.

1. Make sure the IP address of your computer is configured as ***Obtain an IP address automatically*** and ***Obtain DNS server address automatically***
2. Connect your laptop to the router using a LAN cable. Use any of the four yellow/orange LAN ports. Do NOT use the blue WAN port.
3. Make sure you enter the correct IP address to log in: ***http://tplinkwifi.net*** or ***192.168.0.1***.
4. If this is the first time you log in, the router asks you to create a password. The next time you log in, you must use this password to access the settings. There is no username for this purpose. In the User's Guide this is referenced as the "local management password". It can be changed under Advanced → System menu.
5. If this does not work, consult the router manual FAQ section for login instructions and resetting the password

6. Set up the router as a standard wireless router and save the settings.



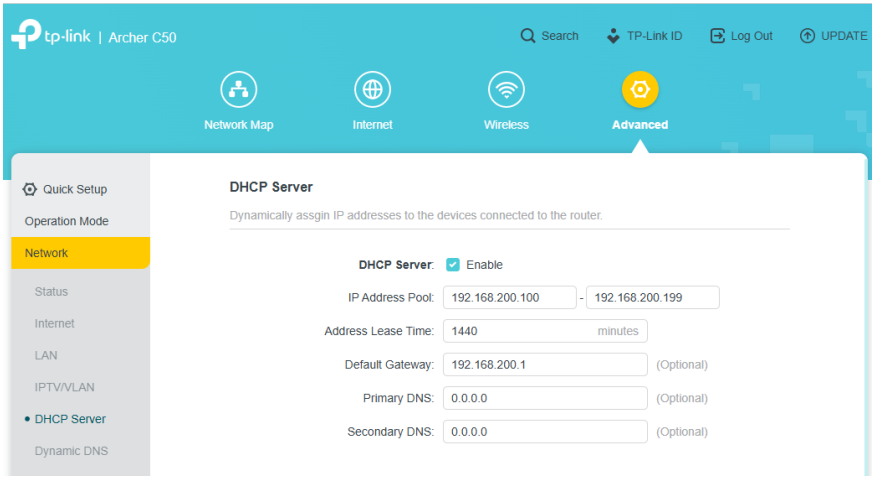
7. Under Advanced →Network → LAN, set IP address to 192.168.200.1 and subnet mask to 255.255.255.0, then save.



At this point the router reboots and you must log in again, now using the new IP address ***192.168.200.1***. The URL address http://tplinkwifi.net should also work.

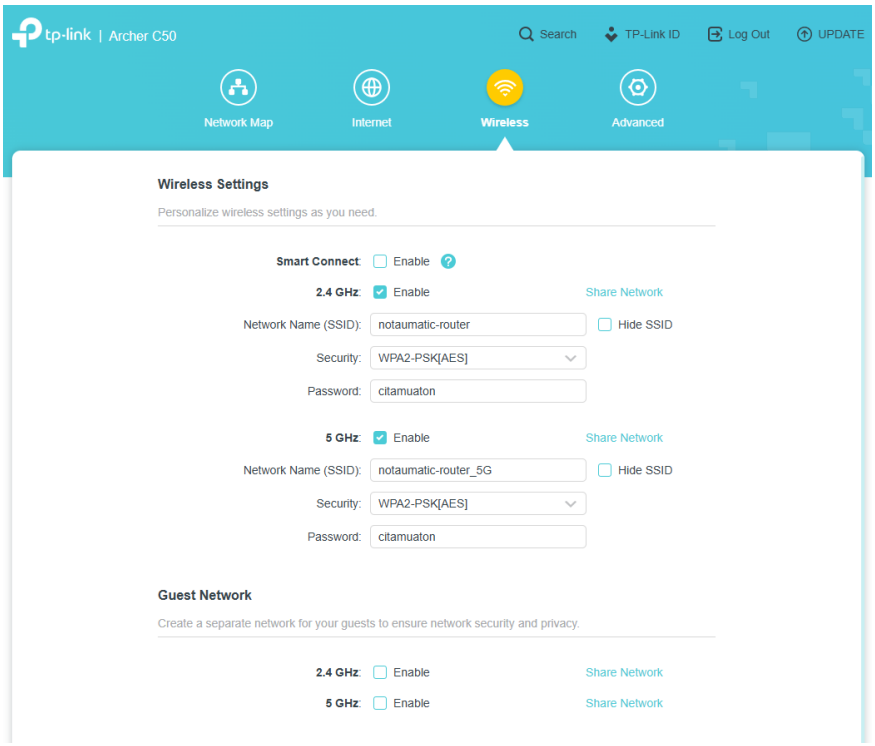
8. Set the correct address range for the DHCP server of the router. This is important since the Notauscore server LAN port uses address 192.168.200.200 which must not be overlapped by the router or other devices. Go to Advanced → Network and change the following details:

a. Make sure that the DHCP Server is enabled (should be active already)
b. Set IP Address Pool to 192.168.200.100 – 192.168.200.199
c. Set Address Lease Time to 1440 minutes (one day)
d. Set Default Gateway to 192.168.200.1



At this point the router may reboot again to take the new DHCP settings into use.

9. Go to Wireless section of the TP-Link menu and set the SSID, security level and WiFi password:

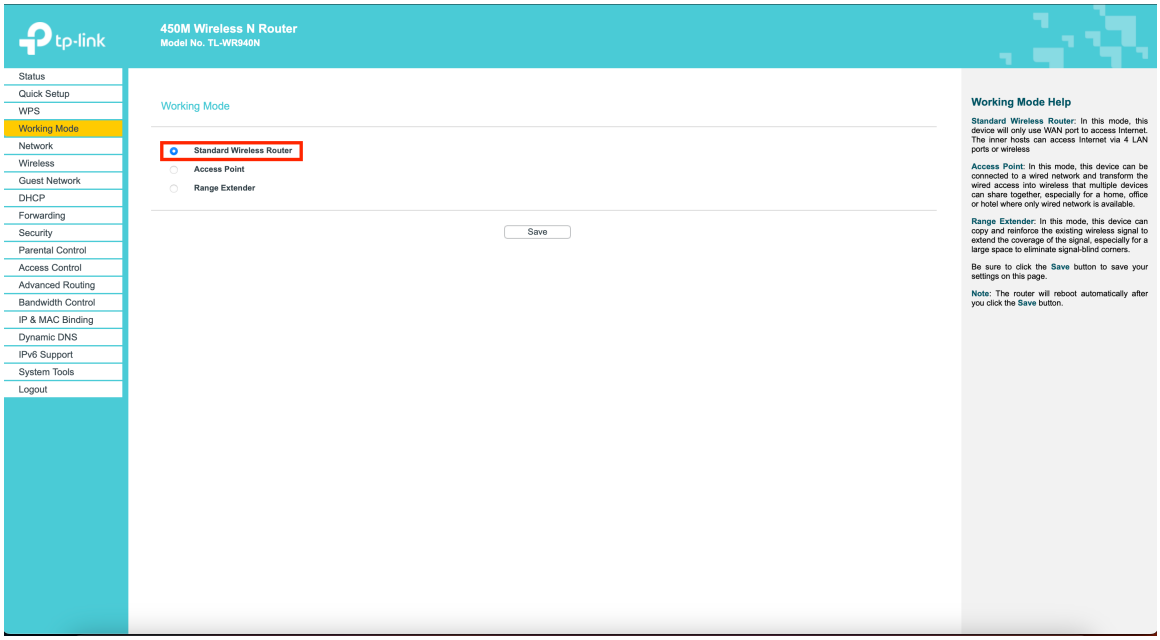


Here the 2.4 GHz network must be enabled, security should be WPA2-PSK and ***SSID as well as the Password must match the values you have in the Notaumatic devices***. **Do not use the same SSID as in the Raspberry Pi WiFi** (ffam-notaumatic). The WiFi passwords can be the same.

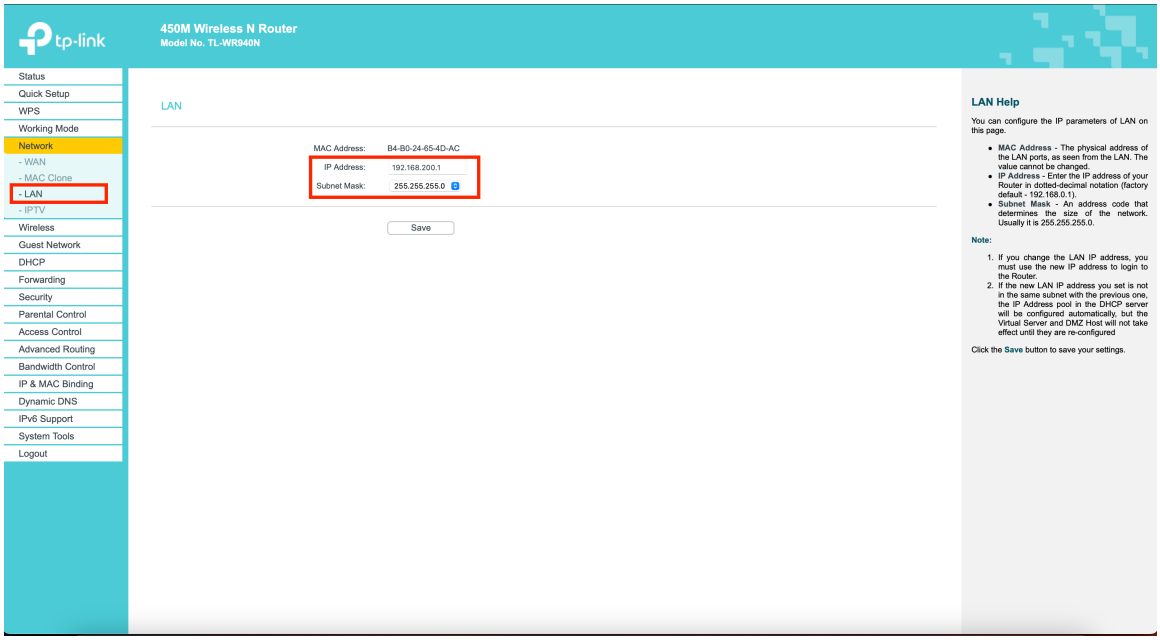
Setting up TP-Link WR940N

The following steps reproduce the original TP-Link WR940N instructions.

1. Connect your laptop to the router using an LAN cable. Use any of the four yellow/orange LAN ports. Do NOT use the blue WAN port.
2. Open a web browser and navigate to http://192.168.0.1 and log in with username: admin, password: admin. **NOTE: It is highly recommended to change the default login to something else before taking the system into operational use!**
3. If this does not work, consult the router manual for login instructions.
4. Set up the router as a standard wireless router and save the settings.



5. Under Network → LAN, set IP address to 192.168.200.1 and subnet mask to 255.255.255.0, then save.



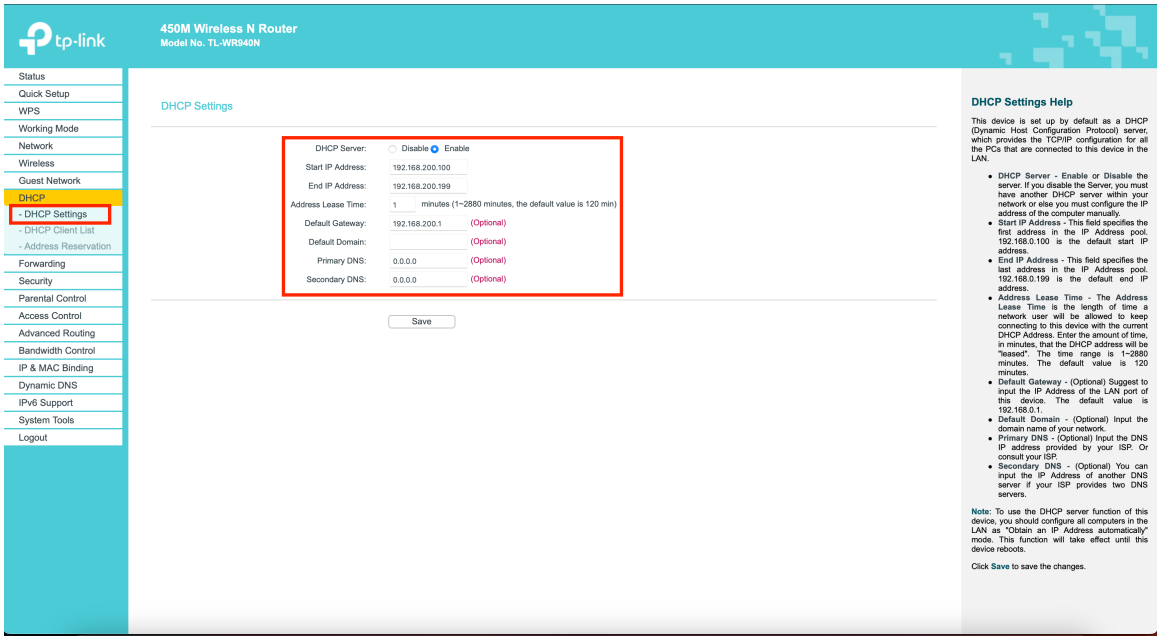
DHCP Configuration (TP-Link WR940N)

Set the following DHCP values:

- Start IP address: 192.168.200.100
- End IP address: 192.168.200.199
- Default gateway: 192.168.200.1

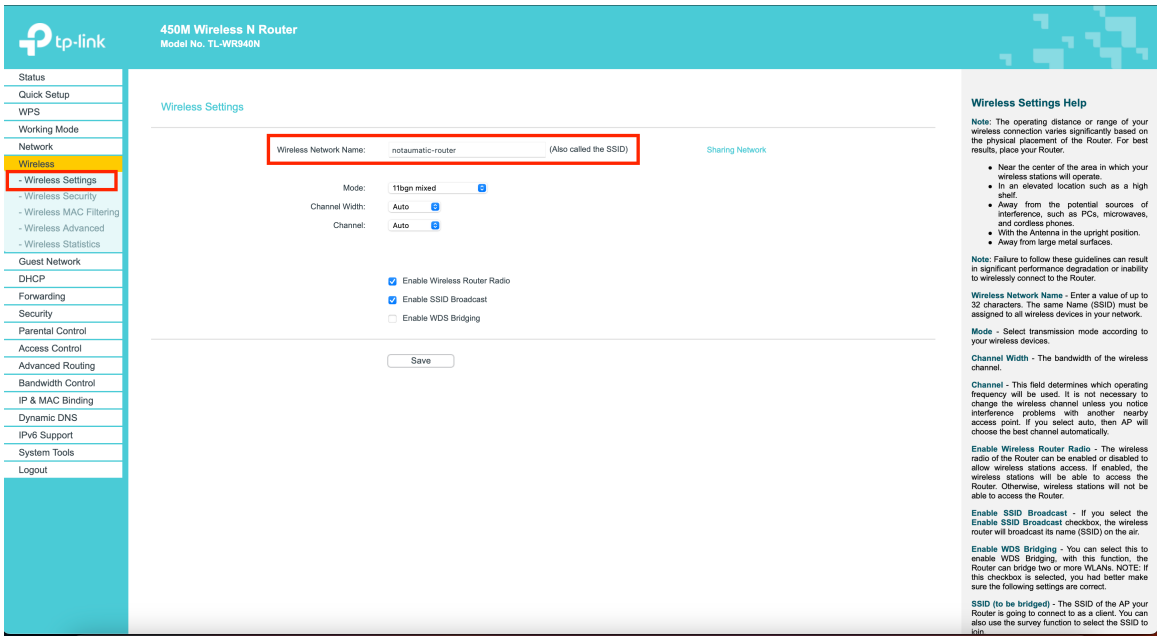
Tip: Set the “Address Lease Time” to 1440 to keep the IP-addresses unchanged for a day.

Save settings and reboot the router.

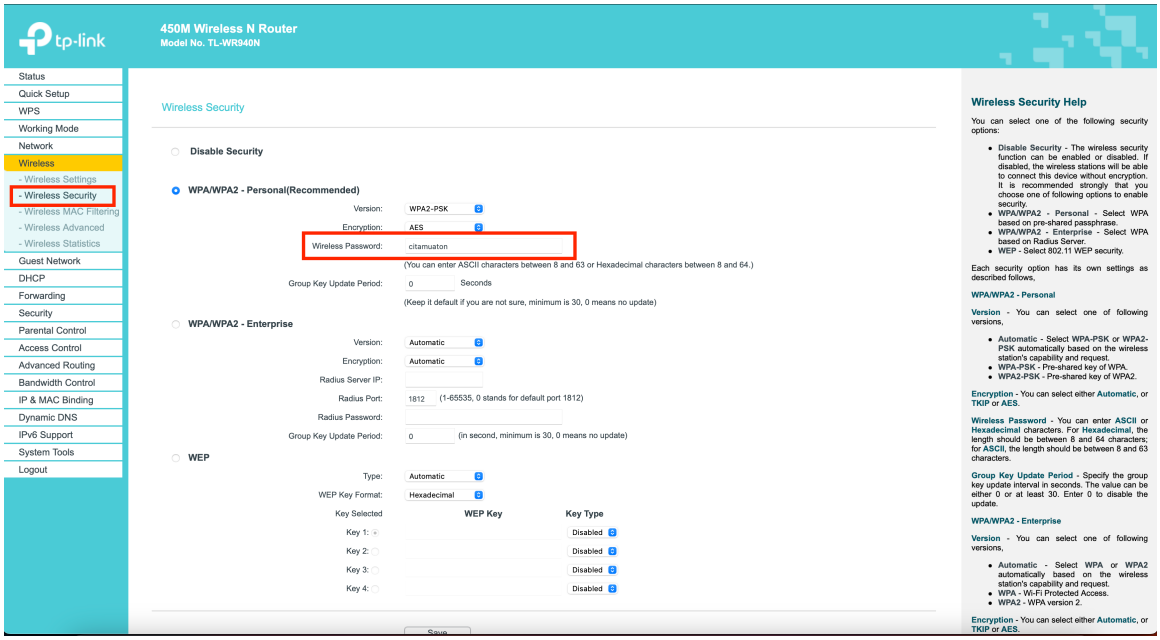


Wireless Settings (TP-Link WR940N)

Change SSID and WiFi password as required. Here we use “notaumatic-router” as the SSID. **Do not use the same SSID as in the Raspberry Pi WiFi** (ffam-notaumatic). The WiFi passwords can be the same.



The wireless password setting can be found under “Wireless Security” in TP-Link WR940N:



Final Verification (for all router models)

Disconnect the LAN cable from your laptop and connect it to the Raspberry Pi. Connect your laptop to the WiFi network of the router and browse to http://192.168.200.200.

The Notaumatic login screen should appear.