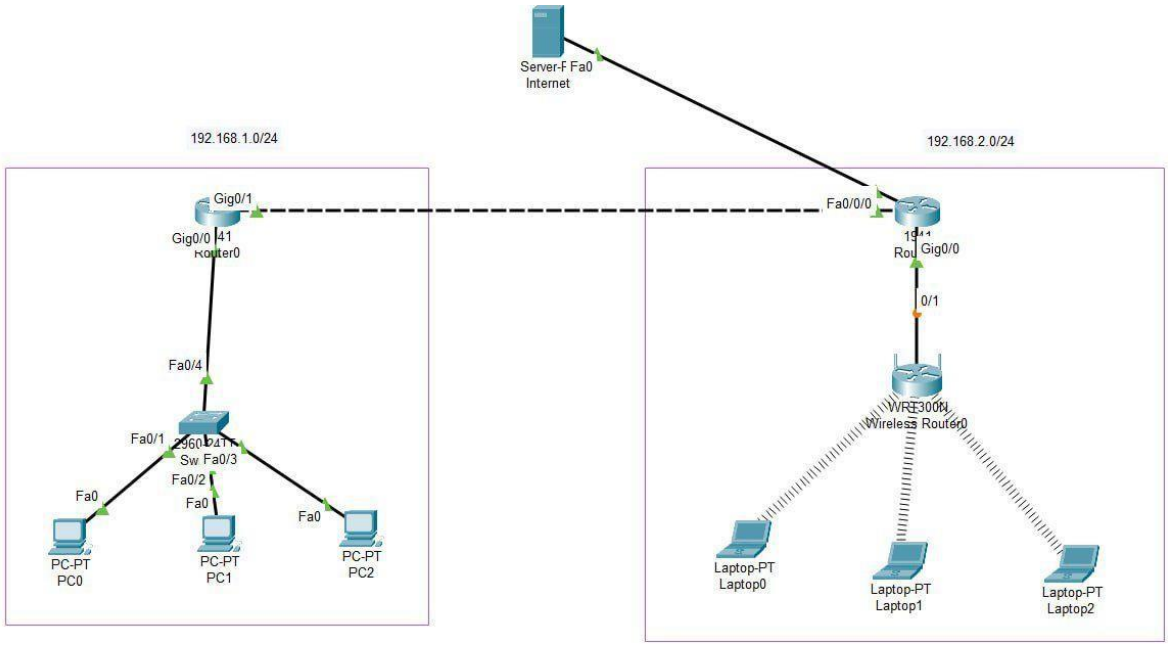
Network Project

Kamalh Al-amri	**444002264**	**Part 2: Evaluating Network Performance+Part3: Checking Network Security**
Reem Al-salhi	**444014767**	**Part 2: Evaluating Network Performance+Part3: Checking Network Security**
Salha Alshaeri	**444009228**	**Part 1: Designing a Local Network+Part3: Checking Network Security**
Rooa Al-Qarni	**444002081**	**Part 1: Designing a Local Network+Part3: Checking Network Security**

Part 1: Designing a Local Network



- Acollection of desktop computers (PC0, PC1, and PC2) connected by a switch make up Subnet 192.168.1.0/24.A FastEthernet (Fa0/1) port connects the switch to the router.Data traffic inside this subnet must be directed by the router.2. Subnet 192.168.2.0/24: This subnet is made up of several laptops (Laptop0, Laptop1, Lap- top2) that are linked together by a wireless router• Gigabit Ethernet (G0/0/0) and Fast Ethernet (Fa0/0) ports are used to connect the wireless router to the router.Controlling the data flow in this subnet is another duty of the router.3. Server:The server serves as the gateway to the internet for both subnets and is immedi- ately connected to the router via a FastEthernet (Fa0) port.Devices in both subnets can connect to the internet thanks to the server's internet access.

Part2: Evaluating Network Performance

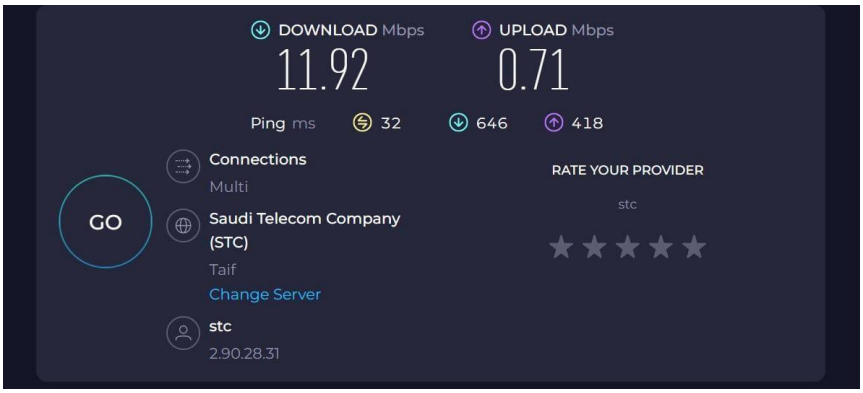
- **Speed test**

When we tested Speedtest next to the router, the results were as follows:

- Download speed: 8.68 Mbps.
- Upload speed: 0.69 Mbps.
- Ping:
- 120 ms when connecting to the server.
- 104 ms when downloading files.
- 365 ms when uploading files.

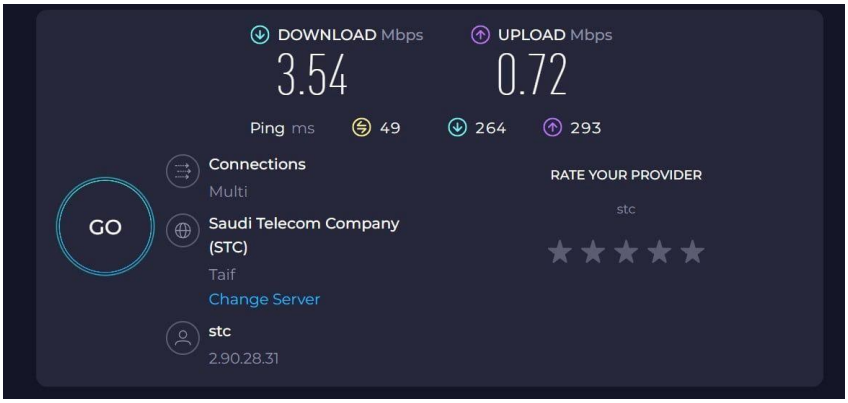
When we tested Speedtest in the middle of the house, the results were as follows:

- Download speed: 6.82 Mbps.
- Upload speed: 0.64 Mbps.
- Ping:
- 34 ms when connecting to the server.
- 628 ms when downloading files.
- 460 ms when uploading files.



When we tested Speedtest in one of the rooms in the house, the results were as follows:

- Download speed: 11.92 Mbps.
- Upload speed: 0.71 Mbps.
- Ping:
- 32 ms when connecting to the server.
- 646 ms when downloading files.
- 418 ms when uploading files.



When we tested Speedtest outside the house, the results were as follows:

- Download speed: 3.54 Mbps.
- Upload speed: 0.71 Mbps.
- Ping:
- 49 ms when connecting to the server.
- 264 ms when downloading files.
- 293 ms when uploading files.

Results : The fastest download speed (11.92 Mbps) was in one of the rooms in the house, while the slowest speed was outside the house. We observed that the latency was lowest near the router but was generally good in the room and in the middle of the house for server connections.

- **ping Test**

```
C:\Users\MSIReem>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=15ms TTL=64
Reply from 192.168.1.1: bytes=32 time=14ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1574ms TTL=64
Reply from 192.168.1.1: bytes=32 time=14ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 1574ms, Average = 404ms
```

When we tested the ping to the IP address 192.168.1.1, the following results appeared:

- Minimum ping: 14 milliseconds (ms)
- Maximum ping: 1574 ms
- Average ping: 404 ms

The ping times vary significantly, with some responses being very fast (14-15 ms) and others much slower (up to 1574 ms). This indicates connection instability.

- **Traceroute**

```
Tracing route to Xrdlab.io [64:ff9b::aabb:bd41]
over a maximum of 30 hops:

  1     3 ms     3 ms     2 ms  2001:16a4:260:7771:c81f:c493:d6a:1d89
  2     *        *        *     Request timed out.
  3    71 ms    53 ms    38 ms  fc00::181
  4    56 ms    40 ms    57 ms  fc00::ab
  5    52 ms    55 ms    57 ms  fd36:a94c:26e9:4000::3fe
  6    65 ms    64 ms    51 ms  fd36:a94c:26e9:4000::2ca
  7     *        *        *     Request timed out.
  8     *        *        *     Request timed out.
  9     *        *        *     Request timed out.
 10     *        *        *     Request timed out.
 11     *        *        *     Request timed out.
 12     *        *        *     Request timed out.
 13     *        *        *     Request timed out.
 14     *        *        *     Request timed out.
 15     *        *        *     Request timed out.
 16     *        *        *     Request timed out.
 17     *        *        *     Request timed out.
 18     *     ^C
```

The image shows the results of a traceroute:

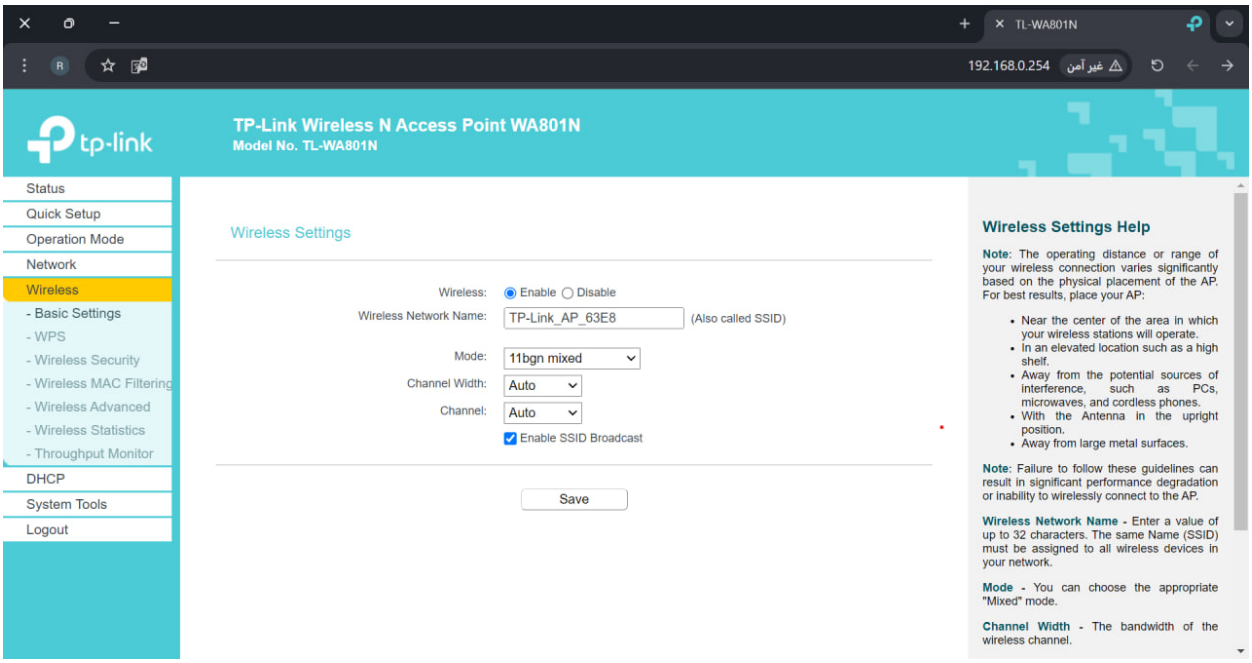
- The first hop responds within 2-3 milliseconds
- The second hop times out
- The subsequent hops up to the sixth hop show varying response times between 38 milliseconds and 65 milliseconds
- From the seventh hop onward, all requests time out
- Hop 2 and hop 7-18 may cause issues

- **Check Network Configuration**

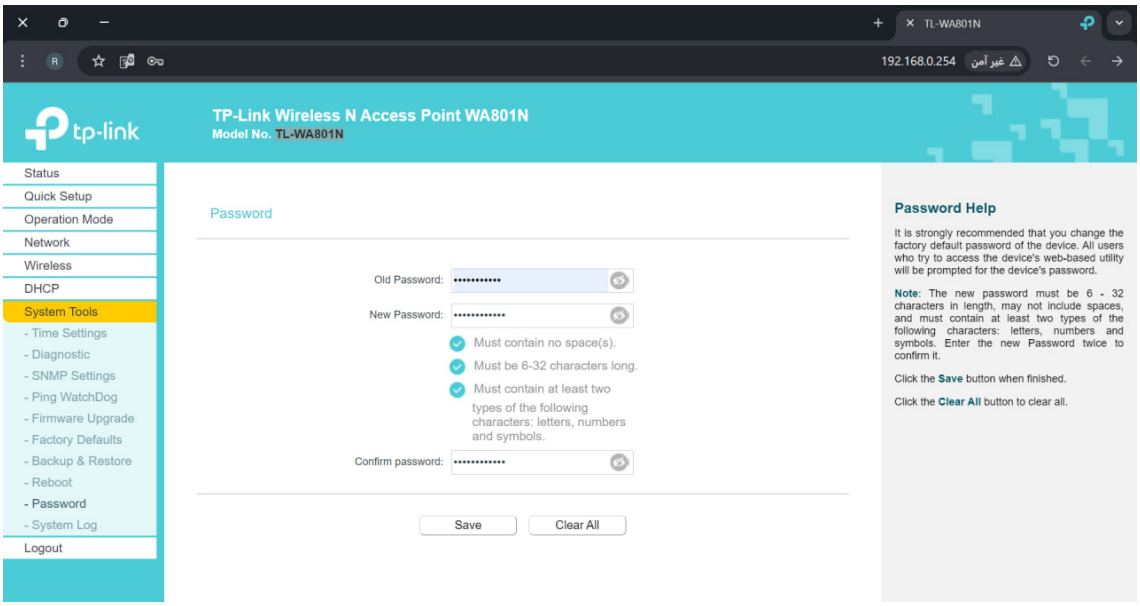
```
Last login: Fri Oct 18 14:51:29 on ttys000
MacBook-Pro-alkhas-b-Badr:~ safaalsalhi$ networksetup -getinfo Wi-Fi
DHCP Configuration
IP address: 192.168.0.102
Subnet mask: 255.255.255.0
Router: 192.168.0.254
Client ID:
IPv6: Automatic
IPv6 IP address: none
IPv6 Router: none
Wi-Fi ID: 98:01:a7:96:68:2d
MacBook-Pro-alkhas-b-Badr:~ safaalsalhi$
```

Part3: Checking Network Security

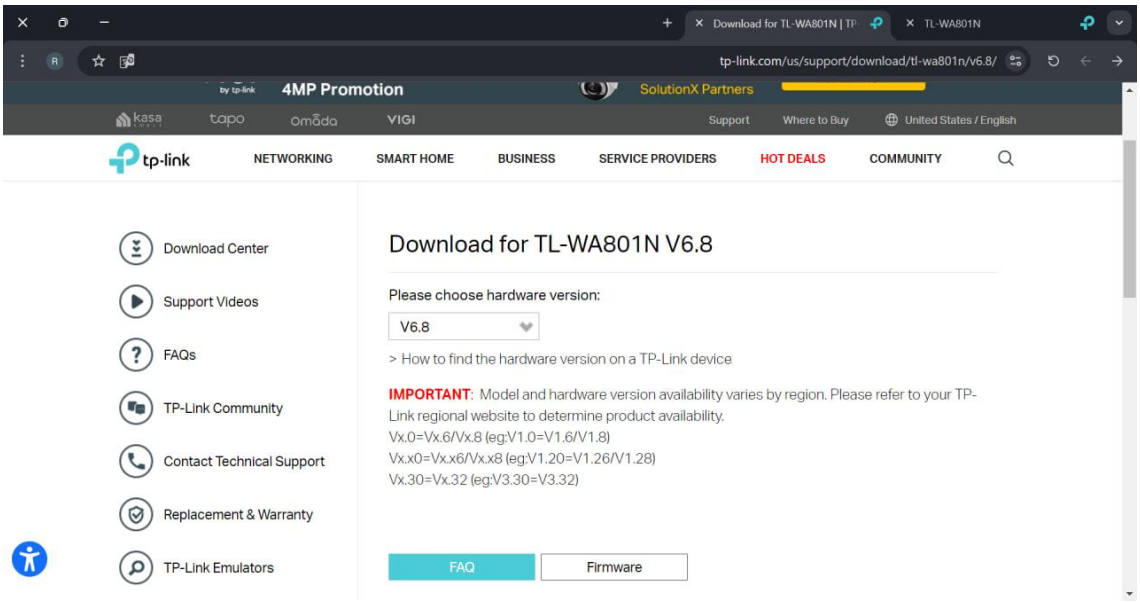
- **Access the Router Settings**

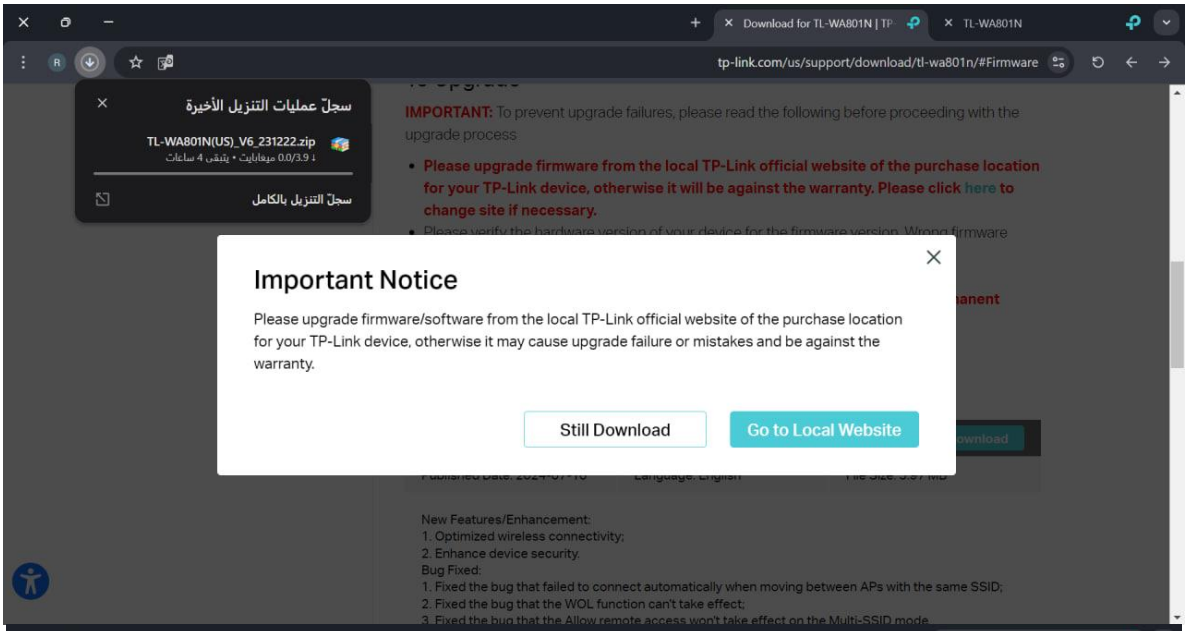


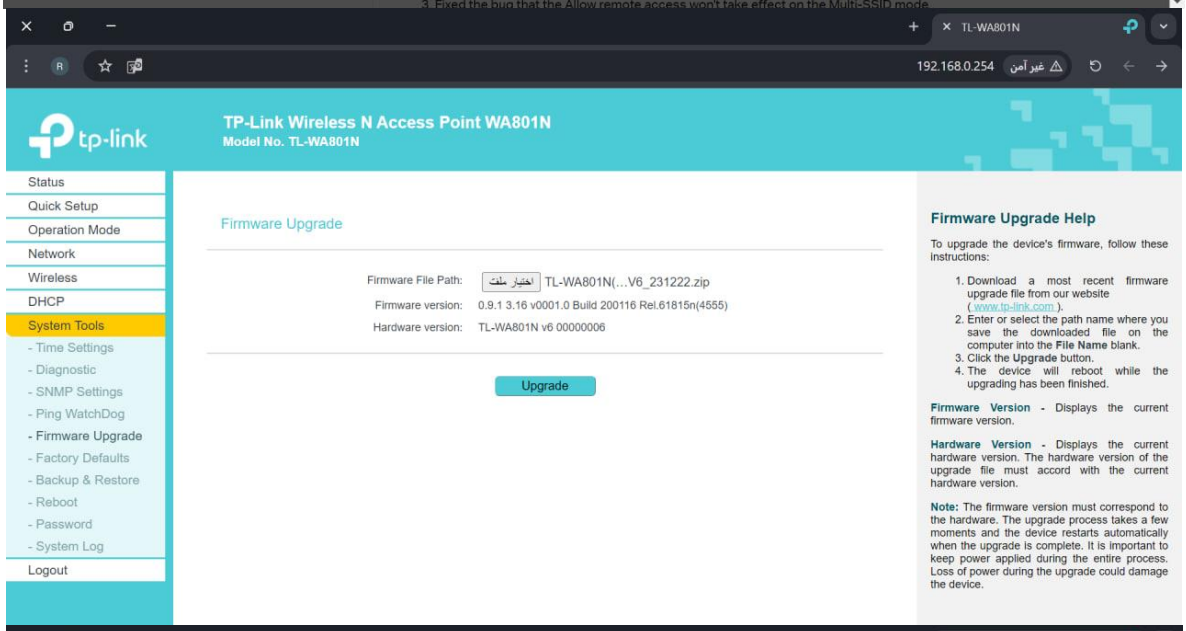
- **Change Default Credentials**

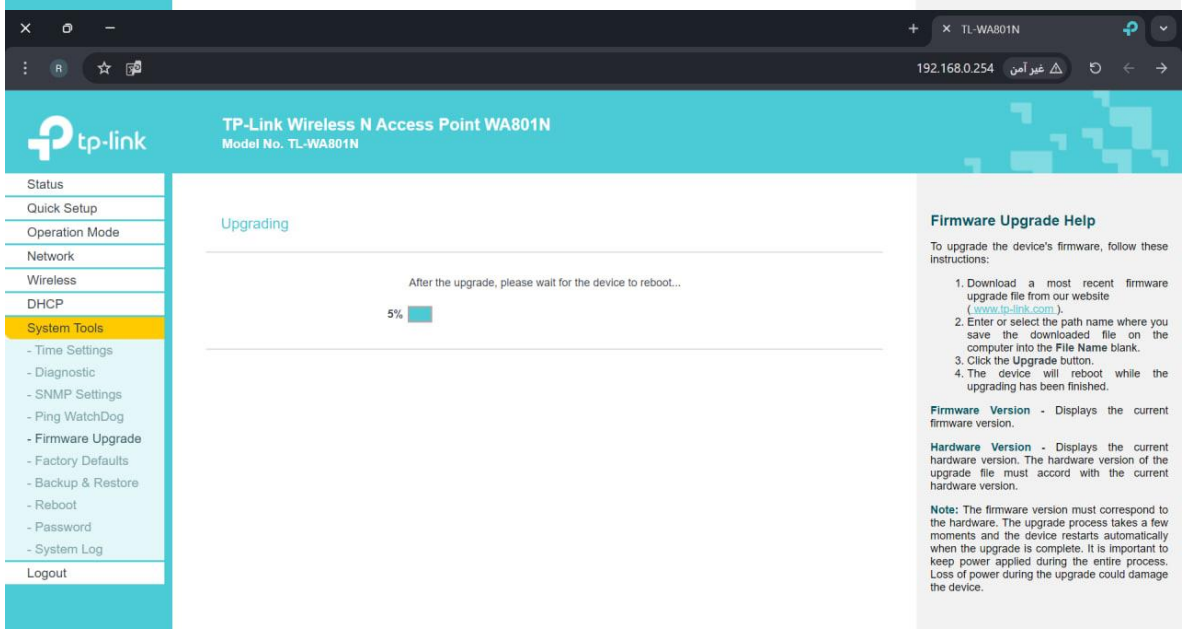


- **Update Firmware**




Download for TL-WA801N | TP
TL-WA801N
tp-link.com/us/support/download/tl-wa801n/#Firmware
سجلّ عمليات التنزيل الأخيرة
TL-WA801N(US)_V6_231222.zip
0.0/3.9 ميغابايت • يتبقى 4 ساعات
سجلّ التنزيل بالكامل
IMPORTANT: To prevent upgrade failures, please read the following before proceeding with the upgrade process
Please upgrade firmware from the local TP-Link official website of the purchase location for your TP-Link device, otherwise it will be against the warranty. Please click here to change site if necessary.
Important Notice
Please upgrade firmware/software from the local TP-Link official website of the purchase location for your TP-Link device, otherwise it may cause upgrade failure or mistakes and be against the warranty.
Still Download
Go to Local Website
New Features/Enhancement:
1. Optimized wireless connectivity;
2. Enhance device security.
Bug Fixed:
1. Fixed the bug that failed to connect automatically when moving between APs with the same SSID;
2. Fixed the bug that the WOL function can't take effect;


TL-WA801N
192.168.0.254
غير آمن
TP-Link Wireless N Access Point WA801N
Model No. TL-WA801N
Status
Quick Setup
Operation Mode
Network
Wireless
DHCP
System Tools
- Time Settings
- Diagnostic
- SNMP Settings
- Ping WatchDog
- Firmware Upgrade
- Factory Defaults
- Backup & Restore
- Reboot
- Password
- System Log
Logout
Firmware Upgrade
Firmware File Path:
اختيار ملف
TL-WA801N(...V6_231222.zip
Firmware version: 0.9.1 3.16 v0001.0 Build 200116 Rel.61815n(4555)
Hardware version: TL-WA801N v6 00000006
Upgrade
Firmware Upgrade Help
To upgrade the device's firmware, follow these instructions:
1. Download a most recent firmware upgrade file from our website (www.tp-link.com).
2. Enter or select the path name where you save the downloaded file on the computer into the File Name blank.
3. Click the Upgrade button.
4. The device will reboot while the upgrading has been finished.
Firmware Version - Displays the current firmware version.
Hardware Version - Displays the current hardware version. The hardware version of the upgrade file must accord with the current hardware version.
Note: The firmware version must correspond to the hardware. The upgrade process takes a few moments and the device restarts automatically when the upgrade is complete. It is important to keep power applied during the entire process. Loss of power during the upgrade could damage the device.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- Diagnostic
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- Ping WatchDog
- Firmware Upgrade
- Factory Defaults
- Backup & Restore
- Reboot
- Password
- System Log
Logout
Upgrading
After the upgrade, please wait for the device to reboot...
5%
Firmware Upgrade Help
To upgrade the device's firmware, follow these instructions:
1. Download a most recent firmware upgrade file from our website (www.tp-link.com).
2. Enter or select the path name where you save the downloaded file on the computer into the File Name blank.
3. Click the Upgrade button.
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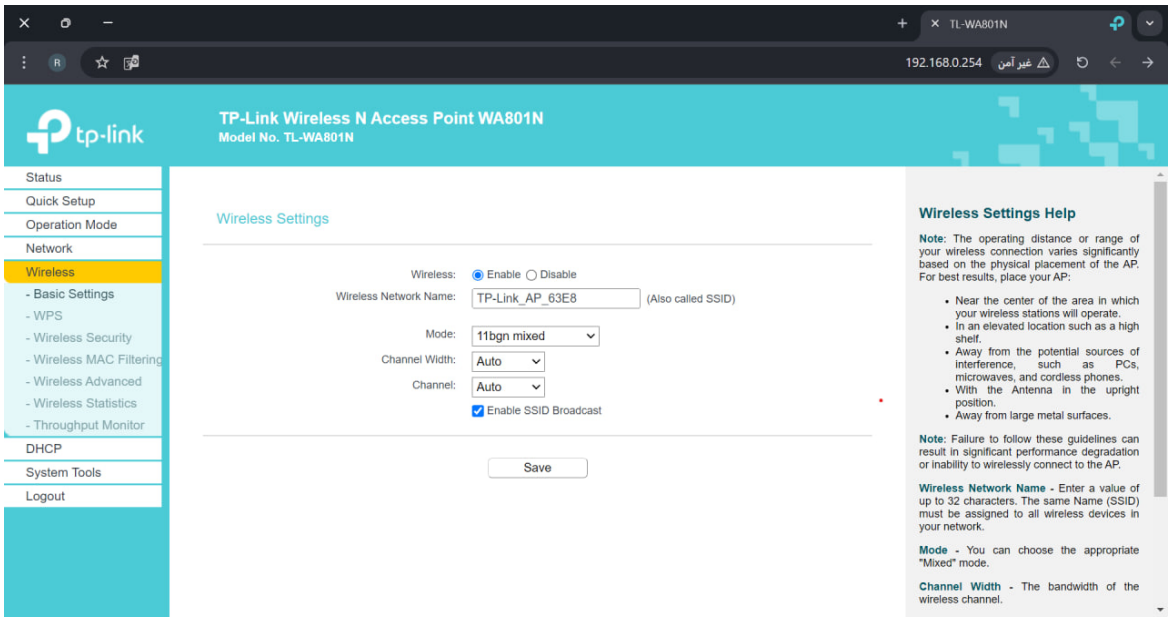
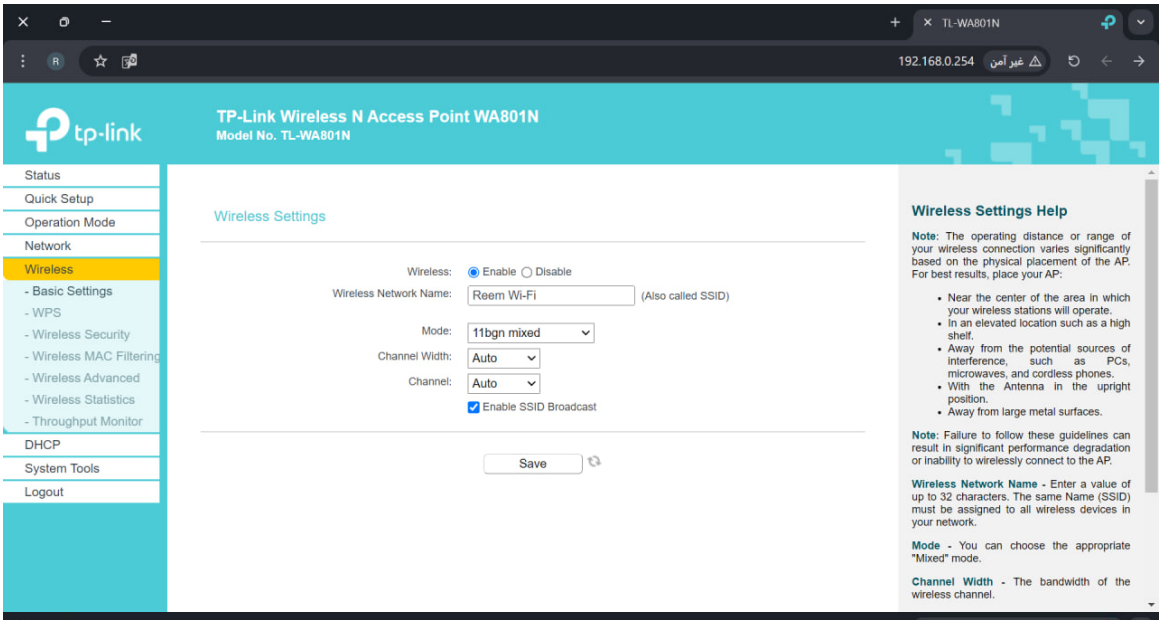
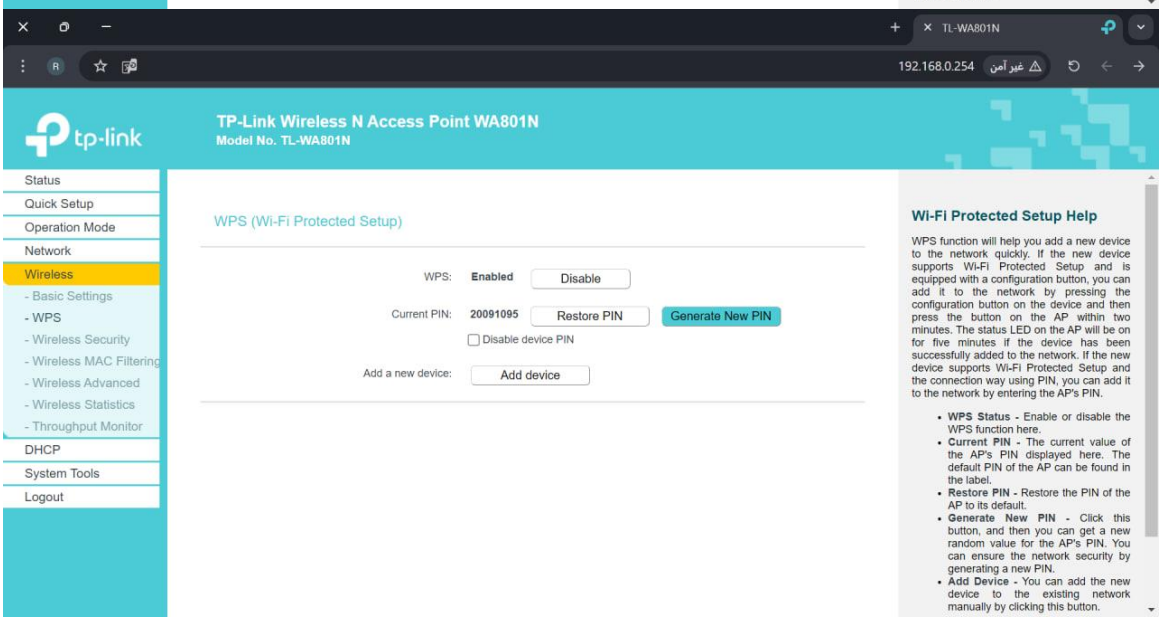
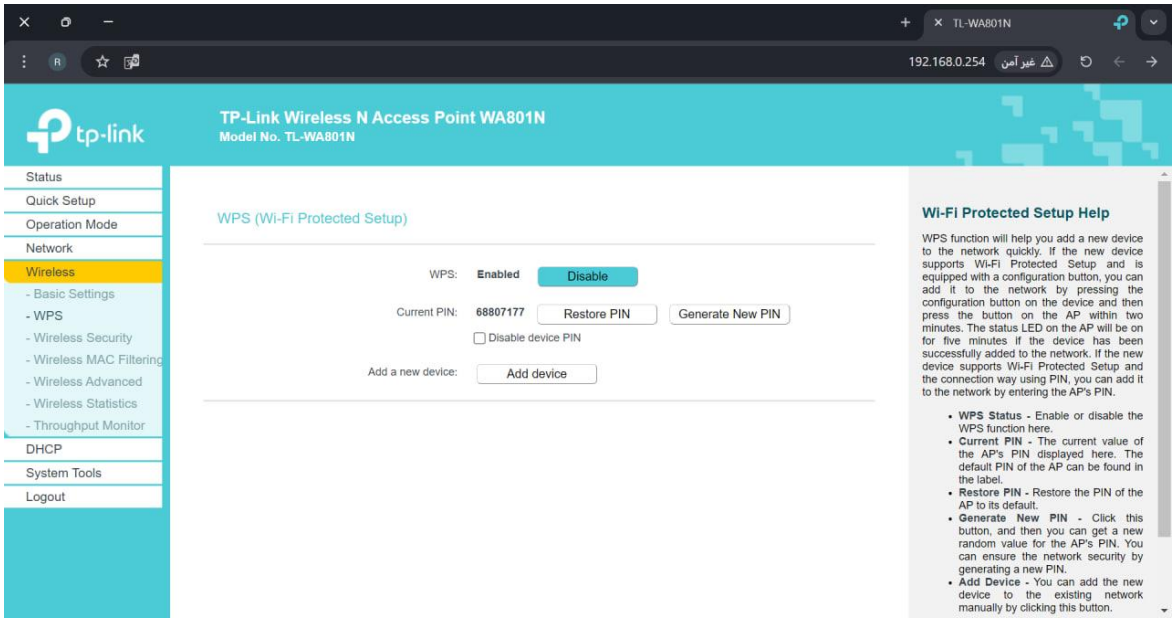
Note: The firmware version must correspond to the hardware. The upgrade process takes a few moments and the device restarts automatically when the upgrade is complete. It is important to keep power applied during the entire process. Loss of power during the upgrade could damage the device.

- **Network Name (SSID)**

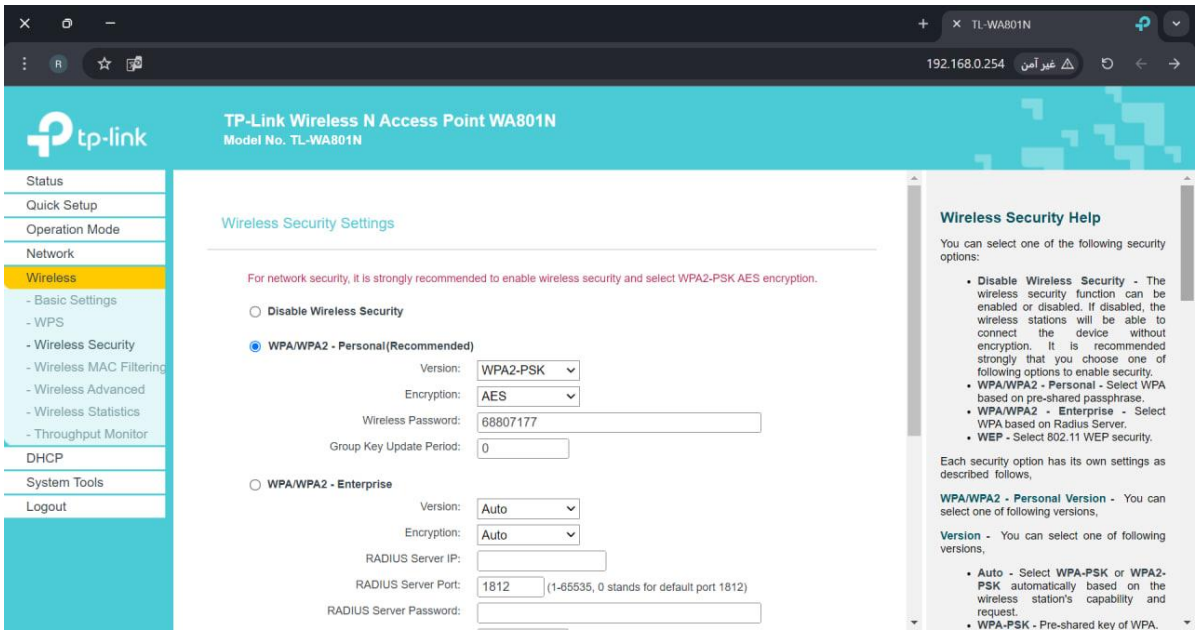




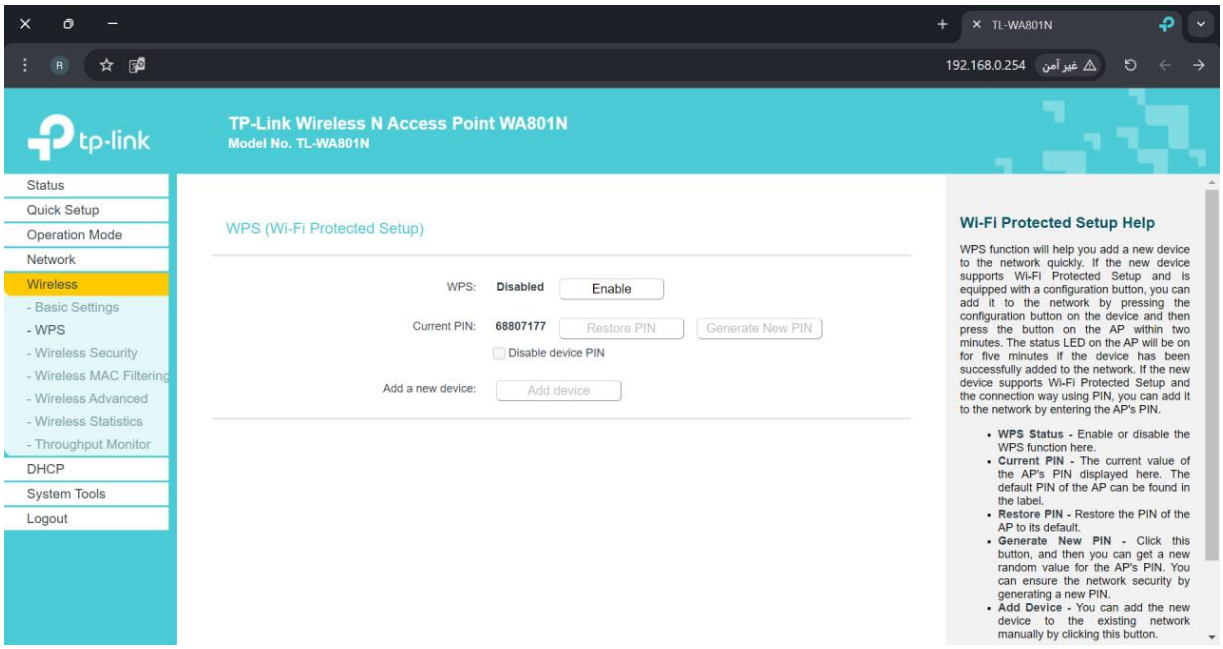




- **Wi-Fi Security Protocol**

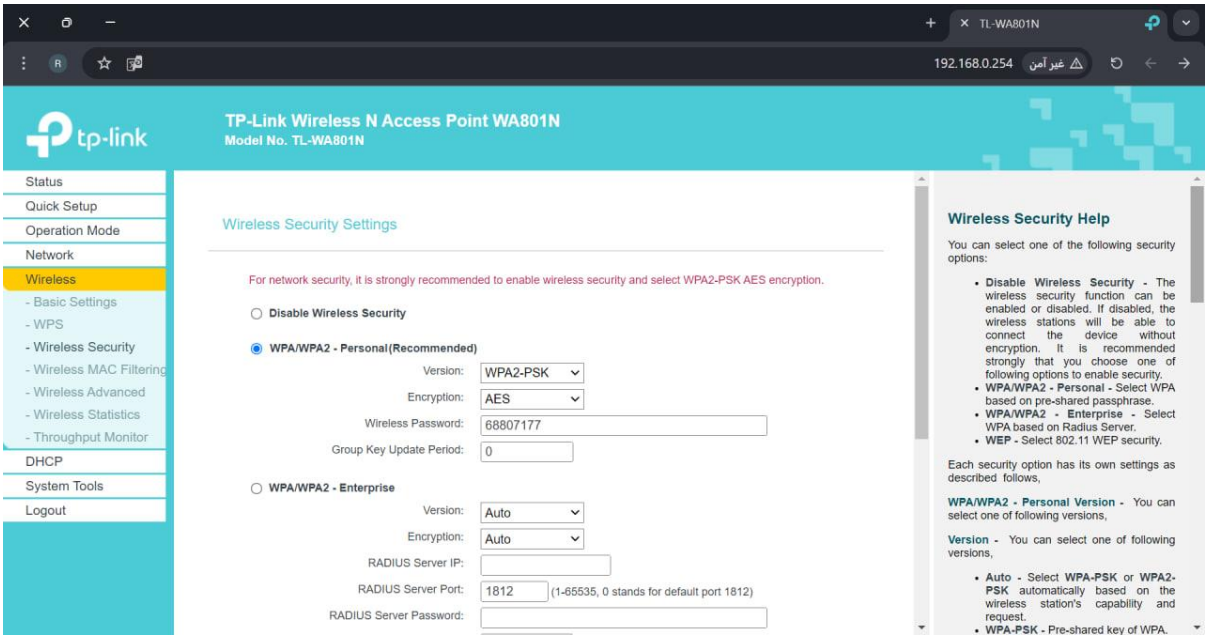


- **Disable WPS**



2. Wireless Network Security

- **Check Encryption (AES)**



3. Device Security

- **Secure Connected Devices**

(I used to use McAfee as My PC security software but my subscription has expired)

- **Firewall Configuration**