



TP-Link TL-WR802N N300 Nano Router

Teardown

A look inside on the smallest wireless router.

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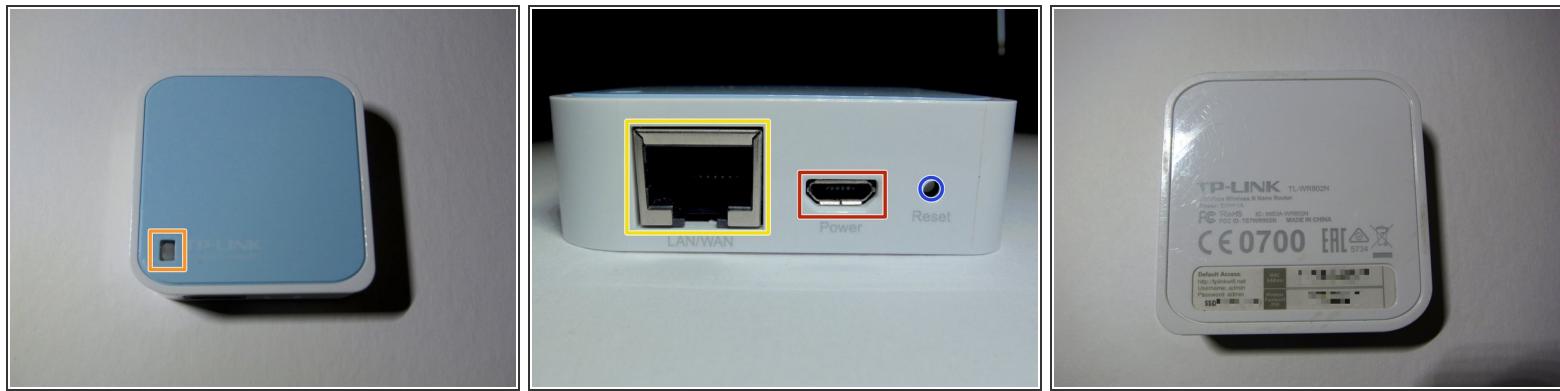
INTRODUCTION

This TL-WR802N router is designed for mobile use, with speeds up to 300 Mbps. It uses a micro USB port for power only, and only has 1 ethernet port.

TOOLS:

- [64 Bit Driver Kit \(1\)](#)
- [Spudger \(1\)](#)

Step 1 — TP-Link TL-WR802N N300 Nano Router Teardown



- Inside the device contains:
 - Speeds up to 300 Mbps; 2x2 MIMO antenna setup; 5 modes which can turn it into a WiFi extender, or a Wi-Fi client to connect wired only devices to Wi-Fi.
- On the outside:
 - Green LED indicator
 - 10/100 Ethernet port; can be used as a WAN or LAN
 - Micro USB for power
 - Recessed Reset Button

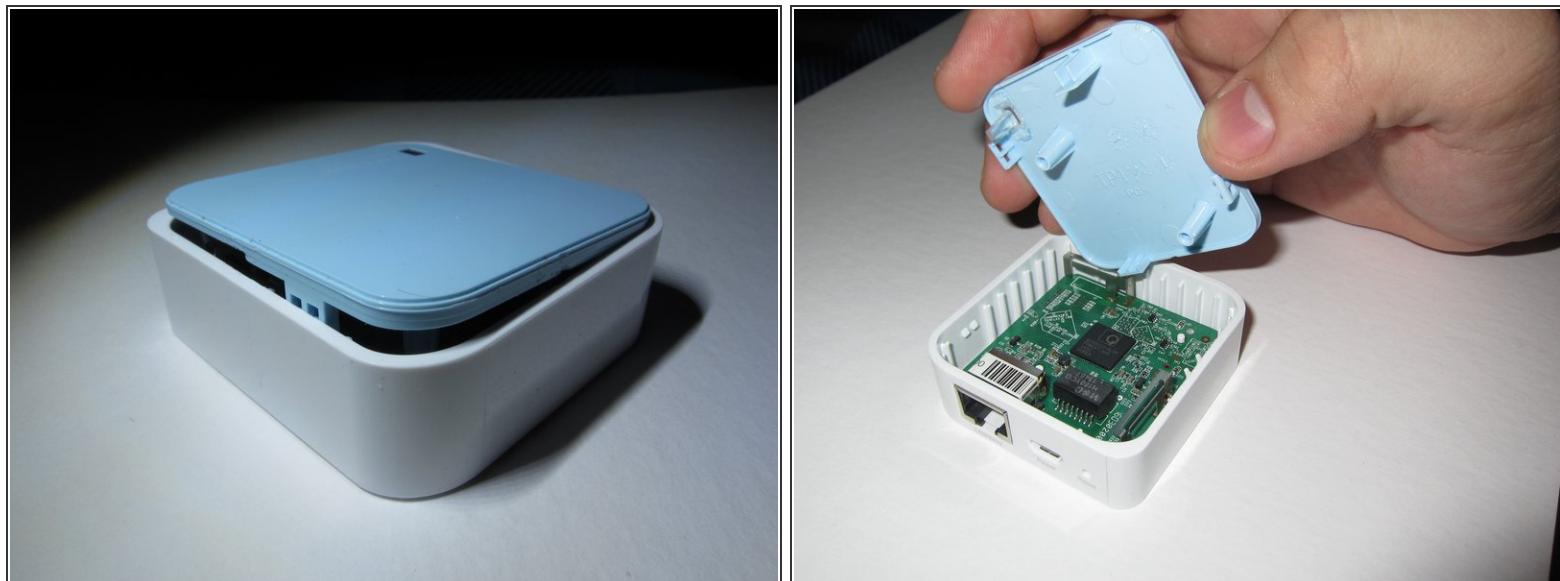
Step 2



- On the top of the router, there is a blue panel that is the case. It is held on by clips, holding it in place.
- The top panel can be removed by using a small flat bladed screwdriver and inserting it into the gap between the case and the panel itself.

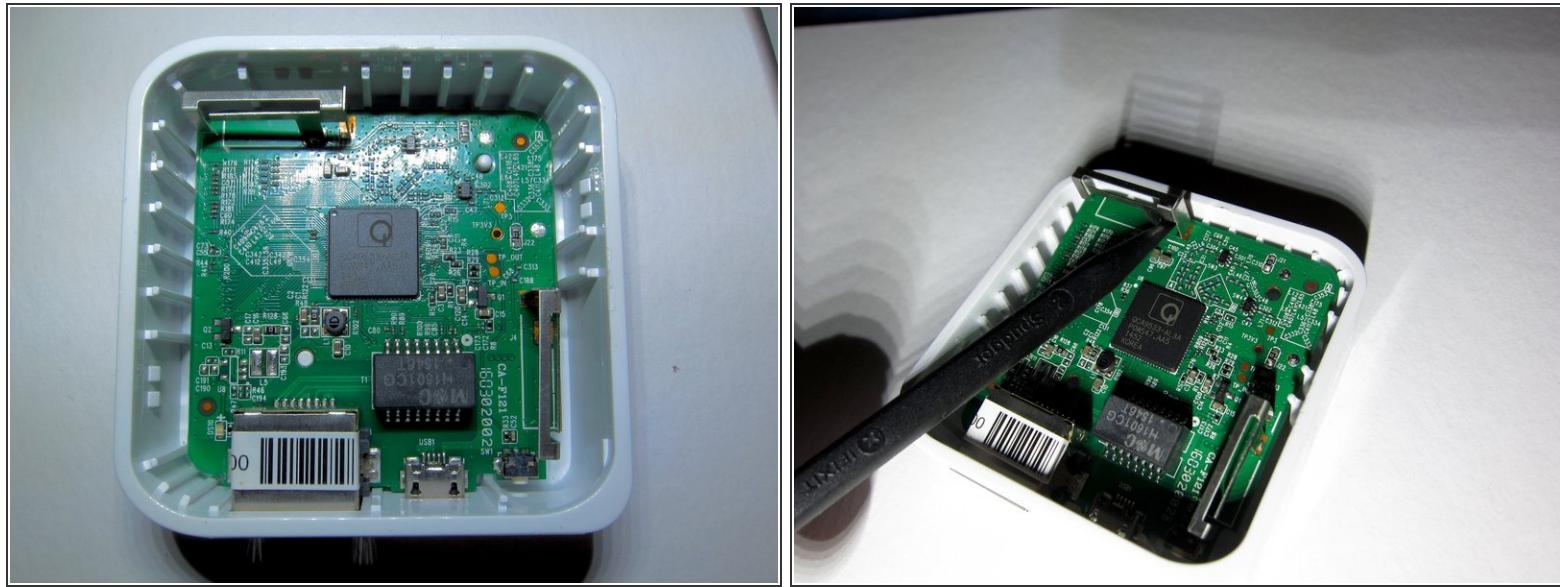
⚠ You have to use a little force, but not too much force as you'll break those clips!

Step 3



- Once the cover is loose, the cover can be removed, revealing the router's main circuit board.

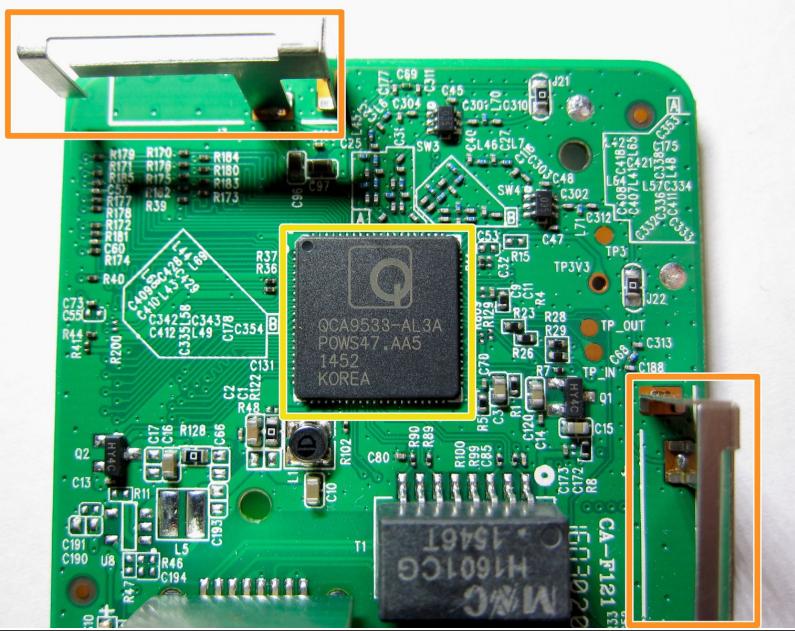
Step 4



- With the top panel removed, we can now see the internal components.
- A spudger was used to lift the circuit board out of the case.

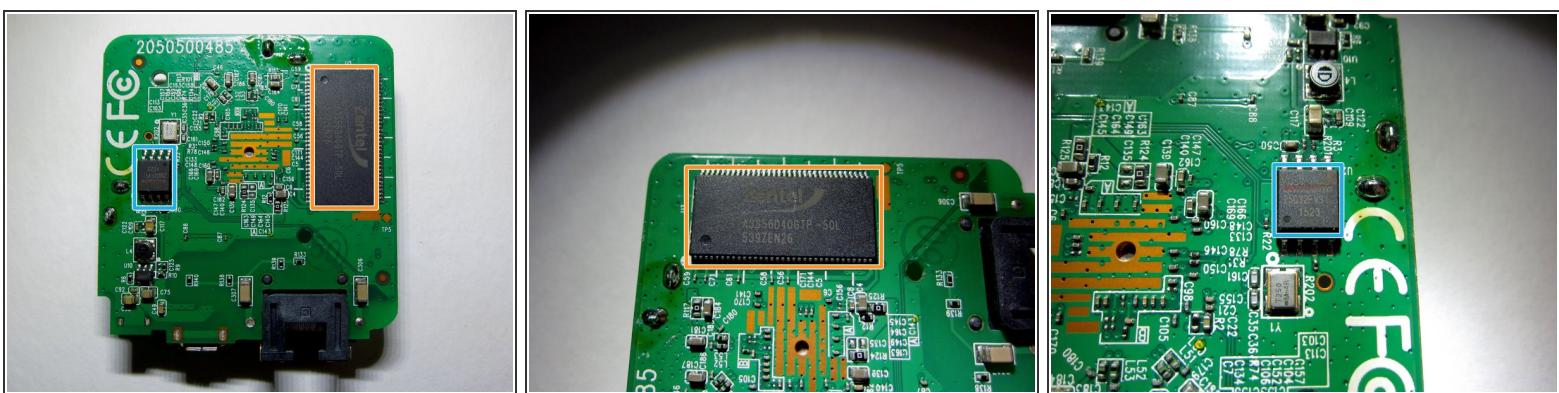
 There was no room to wedge the board out of the case, so one of the antennas was used with the top of the spudger to lift the board out of the case.

Step 5



- On the front of the board:
 - Qualcomm Atheros QCA9533-AL3A SoC
 - Running at a speed of 560 MHz
 - Uses the MIPS 24Kc architecture
 - Contains an integrated Ethernet switch and wireless radio built in.
- 2 soldered antennas that allows a MIMO configuration of 2x2:2.
- Most of the information that I can obtain are from Wikidevi at: https://wikidevi.com/wiki/Qualcomm_Ather...

Step 6



- Back of the board:
 - Zentel A3S56D40GTP-50L RAM chip with 32 MB
 - Windond 25Q32FVS1 SOIC Flash chip with 8 MB

Step 7



- And that's it!
- The router in this teardown is v1.0. There is another version of the same router, called V2.0, which is virtually identical, however it will only accept firmware that was sold in that country.
- For a very small device it can do a lot! But it can do more if the OpenWrt/LEDE firmware was ported over.



Unfortunately, due to the limited amount of memory and RAM, OpenWrt and LEDE may not work as expected, as it expects more memory and RAM, therefore you can't turn it into say a OpenVPN client.