Extending Router Hotspot Network with TAP100

The information in this page is updated in accordance with **00.07.05.0** firmware version. .

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Introduction

This article provides instructions on how to expand the hotspot network of the RUT956 router using the TAP100 access point. It's important to clarify that TAP100 cannot function as an independent hotspot network - it serves as an access point. The network management and control will be handled by the RUT device, with the TAP100 extending the coverage area.

Configuration overview and prerequisites

Before we begin, let's take a look at the configuration that we are attempting to achieve and the prerequisites that make it possible. For this setup we are going to use Teltonika router RUT956 and access point TAP100.

Prerequisites:

- Teltonika Networks router with WiFi capabilities
- Teltonika Networks wireless AP TAP100 connected to the LAN port of the Router
- Preferably two end devices (PC, Laptop, Smartphone)
- RMS account (useful to have)

If you're having trouble finding any page or some of the parameters described here on your device's WebUI, you should turn on "**Advanced WebUI**" mode. You can do that by clicking the "**Advanced**" button, which is located at the top-right corner of the WebUI.

Router configuration

Creating new VLANs on Router

Firstly, we are going to configure VLANs for port that we are going to use to connect our TAP100. In this example, TAP100 will be connected to RUT956 LAN Port 3. To do this, navigate on router Webui and go to **Network -> VLAN -> Port based** and do the following steps:

1. Press ADD button two times. This will add two new VLAN interfaces
2. On LAN3 (we are going to connect TAP to RUT956 LAN3 port) choose off on VLAN ID1
3. On newly created vlan (default VLAN ID will be 3) change the default VLAN ID to 50 and choose "Tagged" option on LAN3 port
4. On second newly created vlan (default VLAN ID will be 4) change the default VLAN ID to 150 and choose "Tagged" option on LAN3
5. Press Save & Apply button

Management VLAN interface configuration

After adding the new VLANs, the next step is to configure the interfaces that will be associated with these VLANs. In this example, we will begin by configuring the "Management" interface, which is intended for device management. To do this, navigate on router WebUI to **Network -> LAN**. While there, add new interface. To do this, simply just write management or any other name that you prefer for this interface and press add. In pop-up window you need to do the following steps :

1. Enable interface
2. Choose "Static" protocol
3. Choose your preferred IP address. We are going to use 192.168.150.1 for management purposes
4. Choose netmask of 255.255.255.0 or any other that you prefer
5. Enable DHCP server

6. Next, we need to navigate to Physical Settings of the same interface and choose eth0.150 interface

7. Lastly, we need to navigate to Firewall settings of the same interface and add custom "Management" zone

Hotspot VLAN interface configuration

Now that we have established the management VLAN interface, we can proceed to configure the hotspot VLAN interface. To do this, as before, please navigate on router WebUI to **Network -> LAN**. While there, add new interface. To do this, simply just write hotspot or any other name that you prefer for this interface and press add. In pop-up window you need to do the following steps :

1. Enable the interface
2. Protocol should be set as "None"

3. Next, In physical settings choose eth0.50 interface and turn on "Bridge Interfaces" option by clicking the button next to it

4. Lastly, In firewall settings, choose LAN zone

5. Dont forget to press Save & Apply

Router Hotspot configuration

Creating hotspot local user

To set up a hotspot instance on the RUT956 router, we firstly must download the hotspot package from the device's package manager. You can access the package manager by navigating to the router's WebUI interface to **System -> Package Manager -> Packages**.

After you have successfully installed the hotspot package, the next step is to access hotspot configuration settings. Please navigate to **Services -> Hotspot -> Local users** as we will be configuring local user authentication for our Hotspot instance. While in this section, please follow these steps :

1. Enter your preferred username
2. Enter your preferred password
3. Press add button

It's crucial to remember and securely store these credentials, as they will be used by users to authenticate themselves on the hotspot network successfully.

Hotspot interface configuration

Now that we've successfully created a hotspot local user, the next step is to configure the hotspot interface. To achieve this, let's navigate to the router's WebUI and access **Services -> Hotspot -> General**. Once there, please follow these steps:

1. Choose Hotspot interface
2. Press "ADD" button

Next, in the pop-up window, please click the "Enable" button. You can choose to either leave all other settings at their default values or make adjustments as per your preferences. For the purpose of this configuration, we'll maintain the default settings.

Access point (TAP100) configuration

From the router's perspective, we've successfully configured all the necessary settings. Now, let's proceed to configure the TAP100.

To begin, we'll have to access TAP100's WebUI. Instructions on how to access the TAP100 WebUI can be found in another article on our Wiki [here](#)

After successfully establishing a connection to the TAP100 WebUI, the next step is to navigate to **Network -> Wireless SSIDs**. Within this section, press edit button on SSID and in pop-up window on VLAN ID option choose custom and enter 50.

After this, navigate to **Network -> IP Settings** and under Management VLAN option choose custom and enter 150. Also, make sure that Mode is set to Static + DHCP.

That concludes the necessary configuration steps for the TAP100. Now, let's establish the connection between your router and the TAP100. To do this, you can simply connect one end of an Ethernet cable to the router's LAN3 port and the other end to the TAP100's Ethernet IN port on the PoE injector. For more detailed installation instructions, please refer to the installation guide which can be found [here](#)

Optional configurations

Access router through hotspot

With the current configuration, clients doesn't have have access to the router WebUI. This section outlines additional steps to enable hotspot clients to access the router's WebUI.

To achieve this, we only need to create one firewall rule on the router. Here's how to do it:

To do this, navigate on router WebUI to **Network -> Firewall -> Traffic Rules**.

Once there, we need to create new rule with the following details :

1. Type : Add new forward rule
2. Name : Enter any desired name for this rule
3. Source Zone : hotspot
4. Destination Zone : lan (we will modify this later)
5. Press "ADD" button

After completing these steps, a pop-up window will appear, where you need to enter the following

details:

1. Protocol: TCP
2. Destination Zone : Device (input)
3. Destination Port : HTTP (80), HTTPS(443)
4. Don't forget to enable and save it

 With this firewall rule in place, all clients connected to the hotspot will have access to the router's WebUI using the router LAN address.

Isolating hotspot clients communication

In our default setup, hotspot clients have the ability to communicate with each other. To restrict this communication, we'll need to make an adjustment on both : your TAP100 device and your router.

1. Access your TAP100 WebUI
2. Navigate to **Network -> Wireless** and click on the "Edit" button for your interface
3. In the configuration window, go to the Advanced Settings section and enable the "Isolate Clients" option by clicking the "ON" button

 To further ensure that clients connected to the router's Wi-Fi interface cannot communicate with hotspot clients, I recommend enabling the "Isolate Clients" option on your router wi-fi interface as well.

By implementing these adjustments, you'll effectively prevent communication between all hotspot clients regardless of whether they are connected to the Routers Hotspot Network directly or through TAP 100 AP.

Testing

Authenticating to the Hotspot network

After client connects to hotspot network, the authentication page should automatically open up on your default browser.

 After entering the required details, clients will have internet connection. The credentials you need to use are the ones you specified when creating the local user earlier.

DHCP assigned IP address for TAP100

You can find what kind of IP address was assigned to TAP100 by navigating on router WebUI to **Status -> Network -> LAN**. There you will see TAP100 entry with it's mac address, lease time and assigned IP address. You can access TAP100 WebUI with this IP address.