

RUTOS relay / Wi-Fi extender / repeater / bridge configuration

[Main Page](#) > [General Information](#) > [Configuration Examples](#) > [WIFI](#) > RUTOS relay / Wi-Fi extender / repeater / bridge configuration



Contents

- [1 Introduction](#)
- [2 Configuration overview and prerequisites](#)
- [3 Router configuration](#)
 - [3.1 RUT1](#)
 - [3.2 RUT2](#)
 - [3.2.1 WiFi WAN](#)
 - [3.2.2 Relay and DHCP Server](#)
- [4 Testing the set up](#)
- [5 Configuration example when there is a dedicated DHCP server in LAN](#)
- [6 Additional notes](#)

Introduction

Relay is a daemon (computer program that runs as a background process) used to relay and dynamically redirect incoming connections to a target host. Its main purpose in RUTxxx routers is to extend the wireless network. For example, when RUTxxx is in STA Wireless Station mode, it can be used to bridge WAN and LAN interfaces to create a larger Wireless network.

This article provides an extensive configuration example of a basic Relay usage scenario with two RUTxxx devices.

Note: If you can not see Relay Configuration section displayed, Relay feature is additional software that can be installed from the **System → Package Manager** page. UDP Broadcast Relay is also an additional software that can be installed from the **System → Package Manager** page.

If you're having trouble finding this 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 "Basic" button under "Mode", which is located at the top-right corner of the WebUI.



Configuration overview and prerequisites

Before we begin, let's overview the configuration that we are attempting to achieve and the

prerequisites that make it possible.

Prerequisites:

- Two RUTxxx routers (one of them with an active data connection)
 - An end device (PC, Laptop, Tablet, Smartphone)
 - Router's LANs should be in different subnet
-

Configuration scheme:



The scheme depicts two RUTxxx routers - RUT1 and RUT2. RUT1 has access to the Internet through an undefined type of WAN (it can be any). RUT2 acts as a WiFi Station (STA) and gains access to the Internet via RUT1's WiFi Access Point (AP) (SSID: RUT_WiFi). RUT2's DHCP Server is disabled. This is done so that the end devices connected to RUT2 get IP addresses from RUT1's DHCP Server with the help of Relay.

So in short, this type of configuration connects devices from different networks into a single network, making it possible for the devices to communicate with each other while also providing the devices with an Internet connection.

NOTE: the parameters displayed in the scheme above will be used in further examples of this guide. Parameters like LAN IP addresses and WiFi SSID should be chosen in accordance with your own needs.


Router configuration

If you have familiarized yourself with the configuration scheme and have all of the devices in order, you can start configuring your routers using instructions provided in this section.

RUT1

The configuration for RUT1 is fairly simple. You only need to make sure that the router has:

- An active data connection (WAN type doesn't matter; use what is available to you or what best suits your needs)
- An active WiFi Access Point (AP)
- An active DHCP Server

A WiFi Access Point (AP) and DHCP Server are enabled by default on RUTxxx routers, but if you wish to make changes, you can find the configuration pages for the services by logging in to the router's WebUI and visiting the **Network** → **Interfaces** click  **Edit** button on the right side of interface for DHCP settings.



Got to **Network** → **Wireless** section and click  **Edit** button on the right side of wireless network for WiFi settings.



RUT2

The key things you need to configure in RUT2 are:

- Enable WiFi WAN and connect to RUT1's WiFi Access Point
- Enable Relay and disable DHCP Server

NOTE: in this case, the steps should be taken in the order they are presented in, because if you disable RUT2's DHCP Server first, you may lose access to your router. So let's begin by setting up WiFi WAN.

WiFi WAN

- To set up WiFi WAN, login to the router's WebUI and navigate to the Network section found the Wireless tab by side (**Network** → **Wireless**):



- To begin configuring WiFi Client first click the 'Scan' button to scan the surrounding area and attempt to connect to a new wireless access point. You can choose whether to scan **2.4 GHz** or **5 GHz** wireless networks:



- Once the scan is complete, you will be presented with a list of nearby WiFi Access Points. Locate and choose RUT1's Access Point and click "**Join network**":



- You again will be redirected to following window, where you will need to enter **WPA passphrase** or other security password depending on AP that you are connecting to, name yours network (it will be name of your wireless WAN interface) and assign firewall rule.




- Next window that opens will be **Device Configuration**. Values there, mostly, should be left unchanged to avoid connection problems, because they are dictated by *Access Point*. Other than that, only difference from Access Point settings are in *Interface Configuration* → *General Setup* section, where **Mode** is set to **Client**, and **Network** attached to this wireless interface is **WAN** instead of LAN:



- Click Save & Apply and if you configured correctly, you will have Wireless Client working.

Relay and DHCP Server

- Configuration for both DHCP and Relay takes place in the *Interfaces* section of the router's *WebUI*. Login and navigate to the *Interfaces* section which is located by side of Network tab (**Network** → **Interfaces**) and click  **Edit** button:



- After you clicked **Edit** button settings window will appear. Above LAN interface settings section you will see **DHCP server** settings section, where you will be available to **disable** DHCP server:



- After you disable DHCP server, scroll down until you will see **Relay configuration** section. Enable **Relay** and select interface:



NOTE: In this case scenario we choose interface named *Access_Point*, because we named wireless network to which we connect as client as *Access_Point*.

Testing the set up

If you've taken all of the steps described above, the configuration is done. But as with any other configuration, it is always wise to test the set up in order to make sure that it works properly. To test this particular set up, login to any of the routers go to **Services** → **CLI**. Login with user name: **root** and the router's admin password. You should then be able to **ping** the other router or any of the end devices that you have connected to either of the two router's. To execute a ping command, type **ping <devices_ip>** into the console and press the Enter key:



Replace <devices_ip> with an actual IP address of a device that is in your network and if the ping requests are successful it means the configuration is working. You can check the IP addresses of the devices connected to your network in RUT1's **Status** → **Routes** section.

Configuration example when there is a dedicated DHCP server in LAN


If you have a dedicated DHCP server on your LAN network, relay configuration would still work with additional configuration. In this example, we will configure relay to forward IP address from DHCP server's LAN network - 192.168.1.0/24. Here is the connection topology to help you understand things better:



In this case, DHCP server is another Teltonika router. First of all, there should be no changes in the previously mentioned RUT2 relay configuration:

- Enable WiFi WAN and connect to RUT1's WiFi Access Point.

- Enable Relay and disable DHCP Server.

If you've taken all of the steps described above, the RUT2 relay configuration is done. Since there is a DHCP server running, there is one change that should be done in RUT1 LAN settings. Navigate to **Network → Interfaces → LAN** and click the  **Edit** button.



After you have clicked the **Edit** button, the settings window will appear. In the **General Settings** section click on **Protocol** and select **DHCP** from the list. Press **Save & Apply**.



Once done, Log into your DHCP servers Web interface and navigate to **Status → Network → LAN**. Here you should be able to see the DHCP leases from the DHCP server's IP pool.



Additional notes

- The communication between RUT1 and the end devices in either network will work regardless of what RUT2's LAN IP address is.
- In this case scenario, enabling Relay in **DHCP server** settings instead of disabling it RUTxxx device which is in **Wireless Station mode** will **not** redirect received **DHCP request messages** to another specified **DHCP server (AP)**.