RouterApp

User Module

UDP Communication Watchdog

APPLICATION NOTE

ADVANTECH

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Used symbols

Danger – Information regarding user safety or potential damage to the router.

Attention – Problems that can arise in specific situations.

Information, notice – Useful tips or information of special interest.

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1. Description of the User Module

This user module is a **UDP communication watchdog** – it checks the specific UDP packet responses in Smart Router and if no responses come back, it switches the PPP (cellular) connection to other SIM card in the Smart Router. It is intended for reliable connection of lottery terminals sending UDP packets via Smart Router to the responder server in Internet. See the operating principle on Figure 1 bellow.

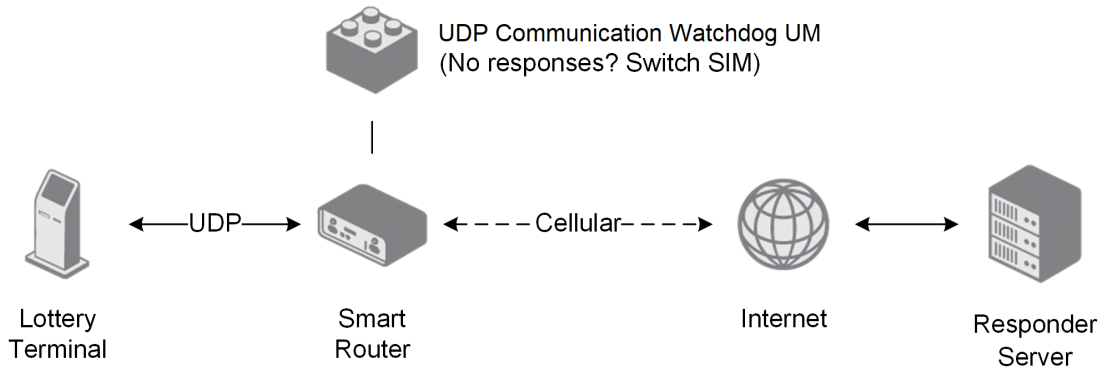

Figure 1: UDP Communication Watchdog operating principle

The user module interface has only one *Configuration* item in the menu and the *Return* item to return back to the routers's GUI. When enabled with default settings, it switches the cellular connection after 4 UDP responses missed. Error and SIM switch logging is accessible on *System Log* page of the router's GUI.

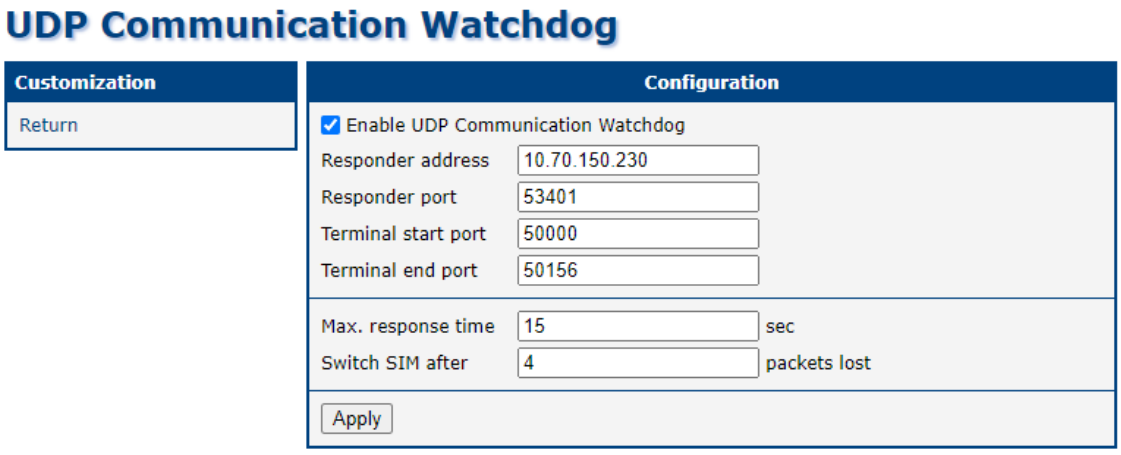

Figure 2: UDP Communication Watchdog User Module

The user module *UDP Communication Watchdog* is not part of the standard router firmware. See the Configuration Manual [1] for instructions on how to upload this user module to the router. This user module is available for v2 and v3 routers.

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2. Configuration

In this chapter, the configuration of the UDP Communication Watchdog is described. Go to the *Configuration* page in the *Communication Watchdog* section of the UDP Communication Watchdog user module – it is also the landing page of the user module. To enable, tick the *Enable UDP Communication Watchdog* checkbox and click *Apply* button. The other configuration items are described in the table below.

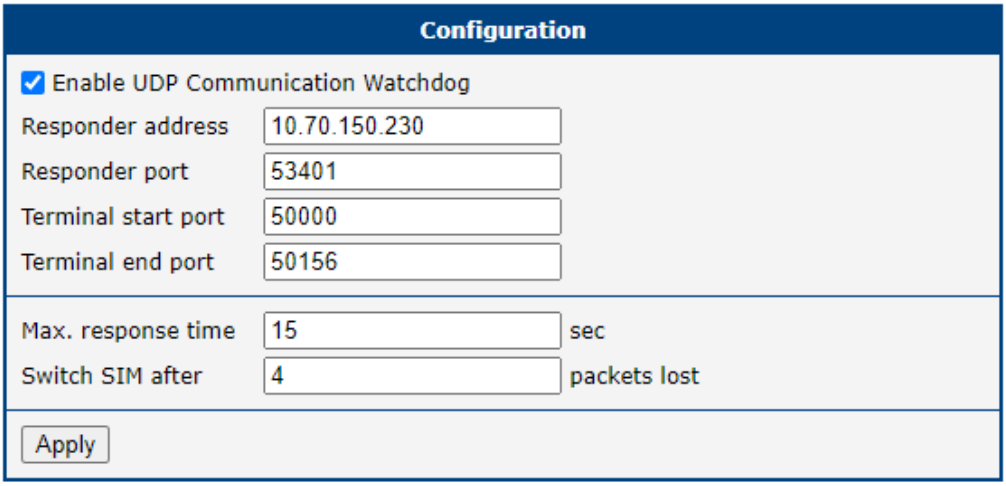

Figure 3: UDP Communication Watchdog Configuration

Item	Description
Enable UDP communication watchdog	Enable the UDP Communication Watchdog. This is necessary for UDP packet checker to run and switch SIMs in case of failure.
Responder address	IP address of the responder server in the Internet. Either IPv4, IPv6 or domain name is allowed. The default value is 10.70.150.230.
Responder port	Port of the responder server in the Internet. Default 53401.
Terminal start port	First port (UDP) of the Lottery terminal connected to the router. Default is 50000. There can be a pool of more connected terminals.
Terminal end point	Last port (UDP) of the Lottery terminal connected to the router. Default is 50156. There can be a pool of more connected terminals.
Max. response time	Time to wait for the answer before considering it the lost packet. Default is 15 seconds.
Switch SIM after X packets lost	Number of lost packets to switch to other cellular connection. Default is 4.

Table 1: UDP Communication Watchdog Configuration

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3. Behavior and System Log

Behavior related notes and logging information are described in this Chapter.

3.1 Supervised UDP traffic

Only specific UDP packets are monitored – these going from a local device (lottery terminal) to the Internet responder and specific responses back. Only UDP packets from configured ports range are tracked.

The UDP packets are matched by a destination IP (when going from local device to responder) and source IP and the port number when going back from the responder to the local device (lottery terminal). Only source and destination of UDP traffic is monitored. The payload of UDP packets is not monitored.

3.2 Switching of the SIM cards

If the packets are going forth (being received from local device) but there are no responses, cellular connection is switched to another SIM card than the active one.

It is done by powering off the cellular module, setting another SIM card as default and powering on the cellular module to establish the new connection. There is no need of any additional SIM switching configuration in the router, but the Smart Router has to be in version with two SIM cards and both SIM cards has to be configured properly on *Mobile WAN* page in the *Configuration* section of the router's Web GUI (typically for two different carriers, both with same APN).

3.3 System Log

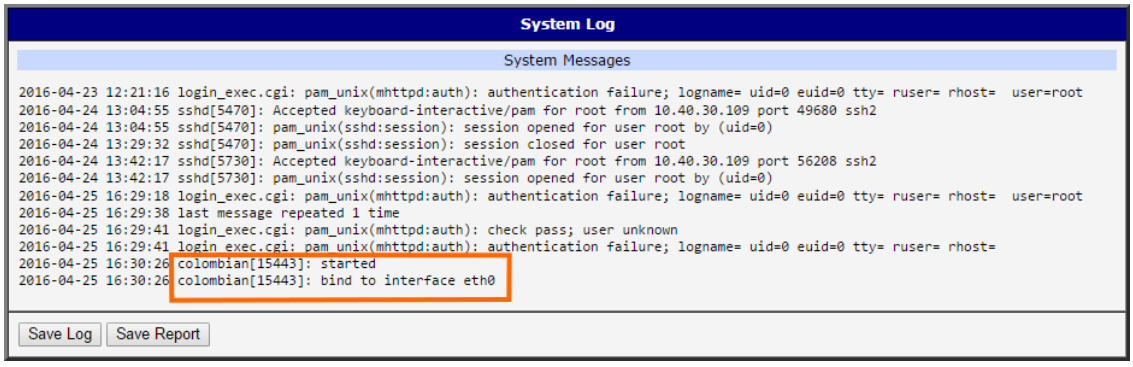

Figure 4: System Log

The user module logs are accessible on the *System Log* page of the router's main menu. The *UDP Communication Watchdog* logs start with the `colombian` string as seen on the Figure 4.

Errors are logged by the user module. When it comes to switching the SIM cards, the following message is shown on the log:

`missing <number> responses from responder -> changing SIM <number of SIM>`

Then there are messages from cellular module being restarted and the new cellular connection being established.

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4. Related Documents

[1] Advantech Czech: **v2 Routers Configuration Manual** (MAN-0021-EN)
[2] Advantech Czech: **SmartFlex Configuration Manual** (MAN-0023-EN)
[3] Advantech Czech: **SmartMotion Configuration Manual** (MAN-0024-EN)
[4] Advantech Czech: **SmartStart Configuration Manual** (MAN-0022-EN)
[5] Advantech Czech: **ICR-3200 Configuration Manual** (MAN-0042-EN)

Product related documents can be obtained on *Engineering Portal* at www.ep.advantech-bb.cz address.