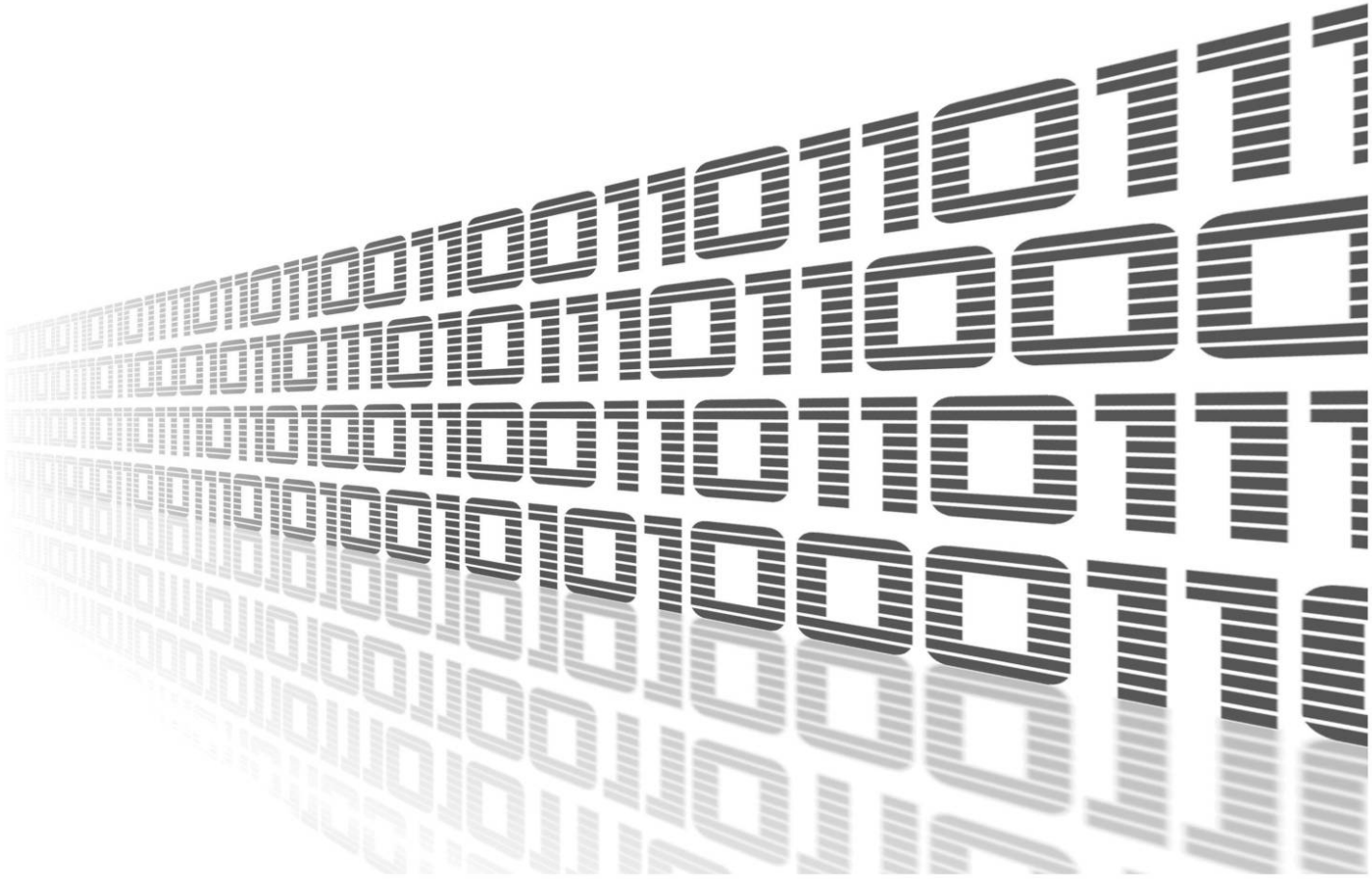
ADVANTECH

RouterApp

Protocol RIP



Advantech Czech s.r.o., Sokolska 71, 562 04 Usti nad Orlici, Czech Republic
Document No. APP-0060-EN, revision from 26th October, 2023.

Used symbols

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

Attention – Problems that can arise in specific situations.

Information – Useful tips or information of special interest.

Example – Example of function, command or script.

Contents

List of Figures

List of Tables

1. Changelog

1.1 Protocol RIP Changelog

v1.0.0 (2012-01-19)

- First release

v1.1.0 (2012-12-04)

- Added support of module IS-IS

v1.2.0 (2013-01-29)

- Updated Quagga version to 0.99.21

v1.3.0 (2013-11-04)

- Derived daemon Zebra

v1.4.0 (2016-03-14)

- Added support of FW 4.0.0+

v1.5.0 (2017-03-20)

- Recompiled with new SDK

v1.6.0 (2018-08-08)

- Updated quagga version to 1.2.4
- Modified cmd "write" to store configuration via vty

v1.6.1 (2019-01-02)

- Added licenses information

v1.6.2 (2019-08-22)

- Fixed crashing RIP protocol

v1.7.0 (2020-06-04)

- Added support of IPv6

v1.8.0 (2020-10-01)

- Updated CSS and HTML code to match firmware 6.2.0+
- Linked statically with c-ares 1.16.1

2. Description of router app

Router app *Protocol RIP* is not contained in the standard router firmware. Uploading of this router app is described in the Configuration manual (see Chapter Related Documents).

Due to this module the RIP routing protocol is available. Allows the routers to communicate with each other and react to changes in network topology. The RIP is a distance-vector protocol, which means that routers send each other updated routing tables (don't know the entire network topology). Searching the shortest paths in the network is based on the Bellman-Ford's algorithm. The decisive factor is the number of routers leading to the destination network. In terms of safety (protection against routing loops), this number is limited to 15. However, this maximum also limits the size of a network.

RIP router app is based on software called Quagga. It is a routing software package that provides TCP/IP based routing services. The Quagga is composed of several deamons. The most important is the *zebra* deamon, which collects routing information, cooperates with the system core and adjusts its routing tables. The rest of deamons including the *ripd* deamon serves as an interface of the central deamon (zebra) for routing protocols. Each deamon has its own configuration file.

For configuration *ripd* and *zebra* deamons are available web interfaces, which are invoked by pressing the *RIP* or *ZEBRA* item on the *Router apps* page of the router web interface. The left part of both web interfaces (ie. menu) contains only the *Return* item, which switches these web interfaces to the interface of the router. In the right part is always field for configuring corresponding daemon.

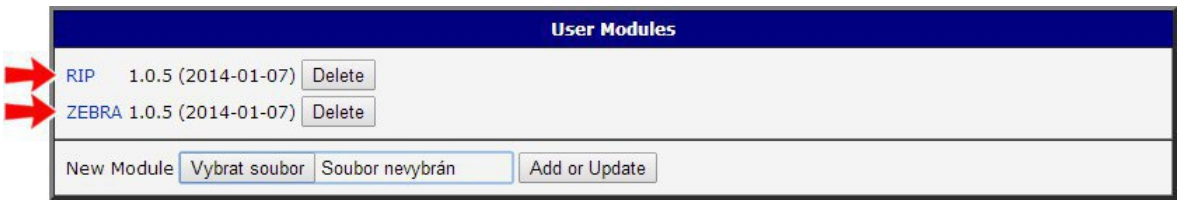


Figure 1: Choice of web interface

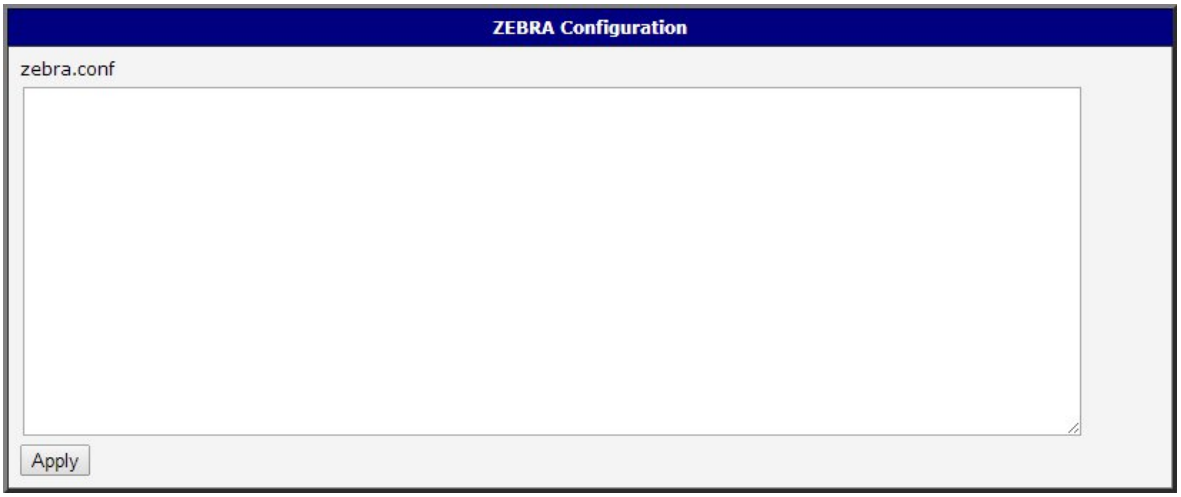


Figure 2: ZEBRA web interface

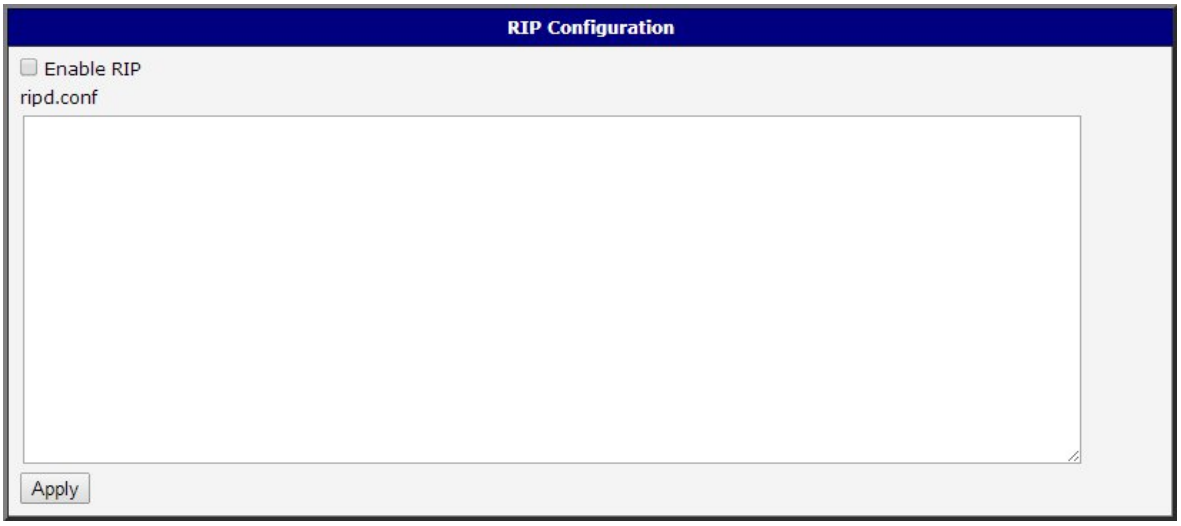


Figure 3: RIP web interface

Important notices:

- Using telnet is vty interface of zebra and ripd deamons available only via the loopback interface 127.0.0.1.
- New configuration files should be created only by an experienced user!

2.1 Example of configuration

The figure below shows a model situation of using the *RIP* router app. Then there are mentioned examples of configuration files of *zebra* and *ripd* deamons. In this form are entered in the configuration form in the web interface *RIP* or *ZEBRA*.

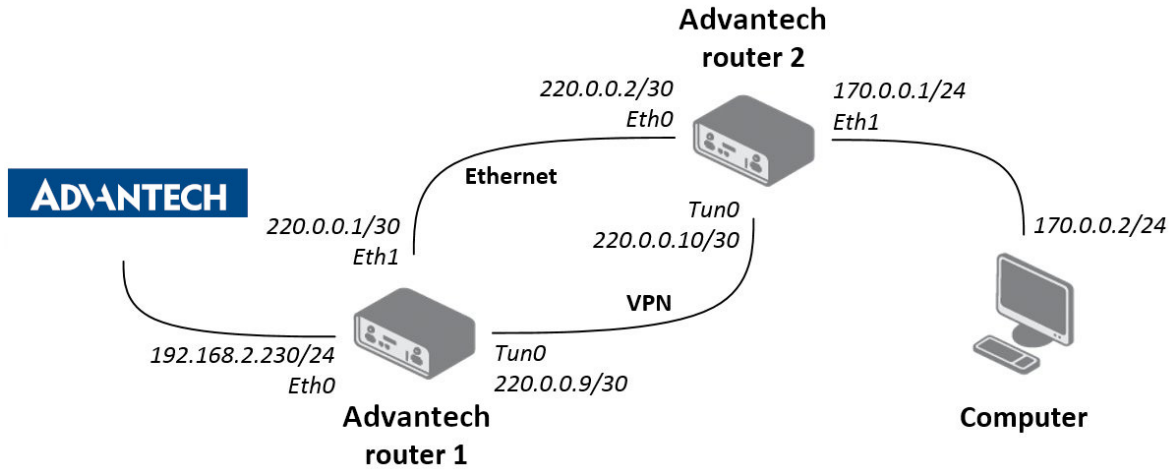


Figure 4: Example of configuration

An example of the zebra configuration file (*zebra.conf*):

```
!
password conel
enable password conel
log syslog
!
interface eth0
!
interface eth1
!
interface tun0
!
interface ppp0
!
!
line vty
!
```

2.1.1 IPv4 Configuration

An example of the *ripd.conf* configuration file for a device which is referred to as *Advantech router 1* in the figure above:

```
!
password conel
enable password conel
log syslog
!
interface eth0
!
interface eth1
!
interface ppp0
!
interface tun0
!
router rip
 version 2
 network eth0
 network eth1
 network tun0
 passive-interface eth0
!
line vty
!
```

An example of the *ripd.conf* configuration file for a device which is referred to as *Advantech router 2* in the figure above:

```
!
password conel
enable password conel
log syslog
!
interface eth0
!
interface eth1
!
interface ppp0
!
interface tun0
!
router rip
 version 2
 network eth0
 network eth1
 network tun0
! passive-interface eth1
!
line vty
!
```

2.1.2 IPv6 Configuration

An example of the *ripngd.conf* configuration file for a device which is referred to as *Advantech router 1* in the figure above:

```
!
password conel
enable password conel
log syslog
!
router ripng
!
network eth0
network eth1
!
passive-interface eth0
!
```

An example of the *ripngd.conf* configuration file for a device which is referred to as *Advantech router 2* in the figure above:

```
!
password conel
enable password conel
log syslog
!
router ripng
!
network eth0
network eth1
!
! passive-interface eth1
!
```

3. Basic commands

The following table lists basic commands which can be used when editing *ripd.conf* and *ripngd.conf* files and description of these commands:

Command	Description
router rip	necessary command to enable RIP
no router rip	disables RIP
network <network>	sets the RIP enable interface by specified network
no network <network>	disables RIP for the specified network
network <ifname>	both the sending and receiving of RIP packets will be enabled on the port specified in this command
no network <ifname>	disables RIP on the specified interface
neighbor <ip-address>	defines a neighboring router with which to exchange routing information
no neighbor <ip-address>	disables the RIP neighbor
passive-interface <ifname>	sets the specified interface to passive mode, i.e. disables sending routing updates on an interface
passive-interface default	sets all inerfaces to passive mode
no passive-interface <ifname>	sets the specified interface to normal mode
ip split-horizon	enables the split horizon mechanism (information about the routing is never sent back on the same interface)
no ip split-horizon	disables the split horizon mechanism (enabled on each interface by default)
version <version>	specifies a RIP version used globally by the router (it can be either 1 or 2)
no version	resets the global version setting back to the default
ip rip send version <version>	specifies a RIP version to send on an interface basis
ip rip receive version <version>	specifies a RIP version to receive on an interface basis
show ip rip	shows RIP routes
show ip protocols	displays the parameters and current state of the active routing protocol process

Table 1: Basic commands

4. Licenses

Summarizes Open-Source Software (OSS) licenses used by this module.

RIP Licenses		
Project	**License**	**More Information**
quagga	GPLv2	License
c-ares	MIT	License
readline	GPLv3	License
ncurses	Ncurses	License

Figure 5: Licenses

5. Related Documents

You can obtain product-related documents on *Engineering Portal* at *icr.advantech.cz* address.

To get your router's *Quick Start Guide*, *User Manual*, *Configuration Manual*, or *Firmware* go to the *Router Models* page, find the required model, and switch to the *Manuals* or *Firmware* tab, respectively.

The *Router Apps* installation packages and manuals are available on the *Router Apps* page.

For the *Development Documents*, go to the *DevZone* page.