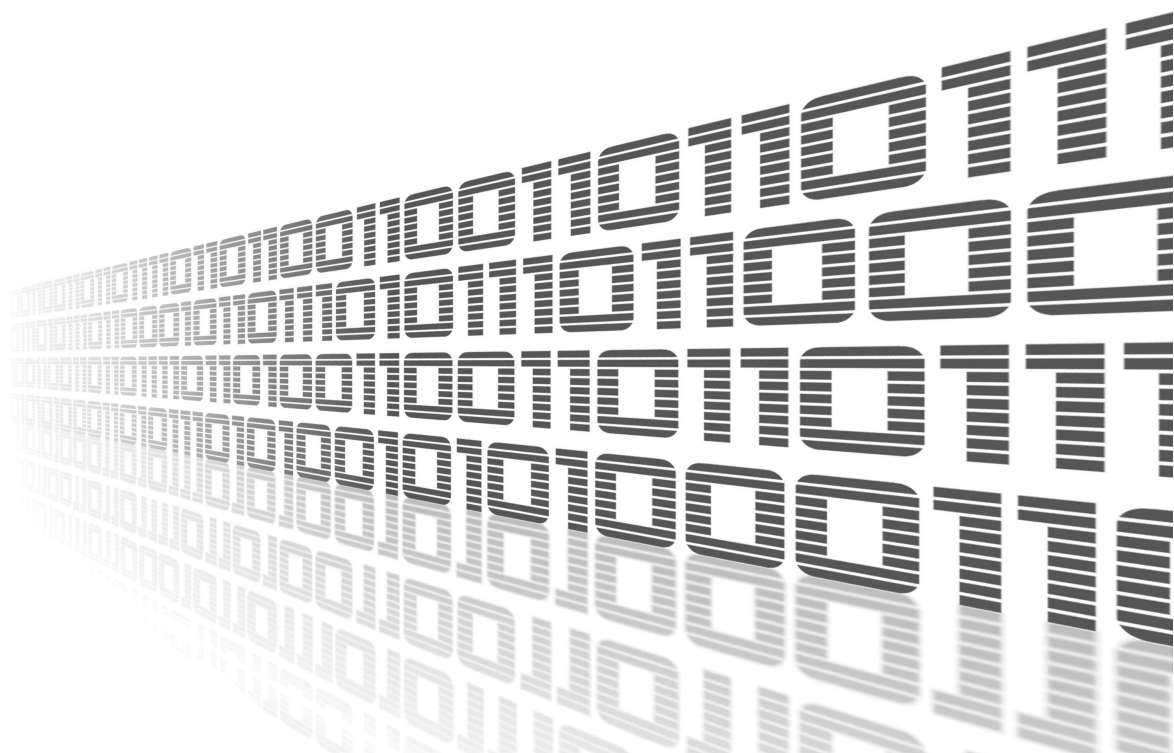




User Module

RIP

APPLICATION NOTE



Used symbols



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



Attention – Problems that may arise in specific situations.



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



Example – example of function, command or script.



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1. Description of user module



User module *RIP* is not contained in the standard router firmware. Uploading of this user module is described in the Configuration manual (see [1, 2]).



The user module is v2 and v3 router platforms compatible.

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 user module 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 daemons. The most important is the *zebra* daemon, which collects routing information, cooperates with the system core and adjusts its routing tables. The rest of daemons including the *ripd* daemon serves as an interface of the central daemon (zebra) for routing protocols. Each daemon has its own configuration file.

For configuration *ripd* and *zebra* daemons are available web interfaces, which are invoked by pressing the *RIP* or *ZEBRA* item on the *User modules* 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.

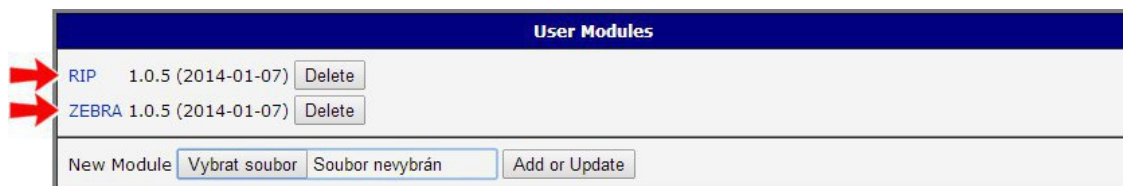


Figure 1: Choice of web interface



Figure 2: ZEBRA web interface



Figure 3: RIP web interface

Important notices:

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

1.1 Example of configuration

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

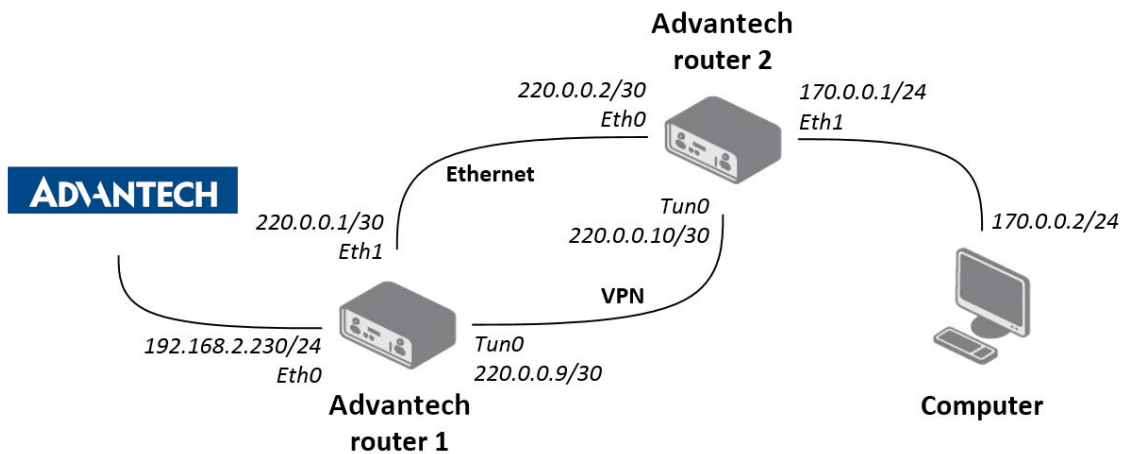


Figure 4: Example of configuration

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
!
```

1.1.1 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  
!
```

1.1.2 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  
!
```

2. 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 interfaces 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

3. 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.