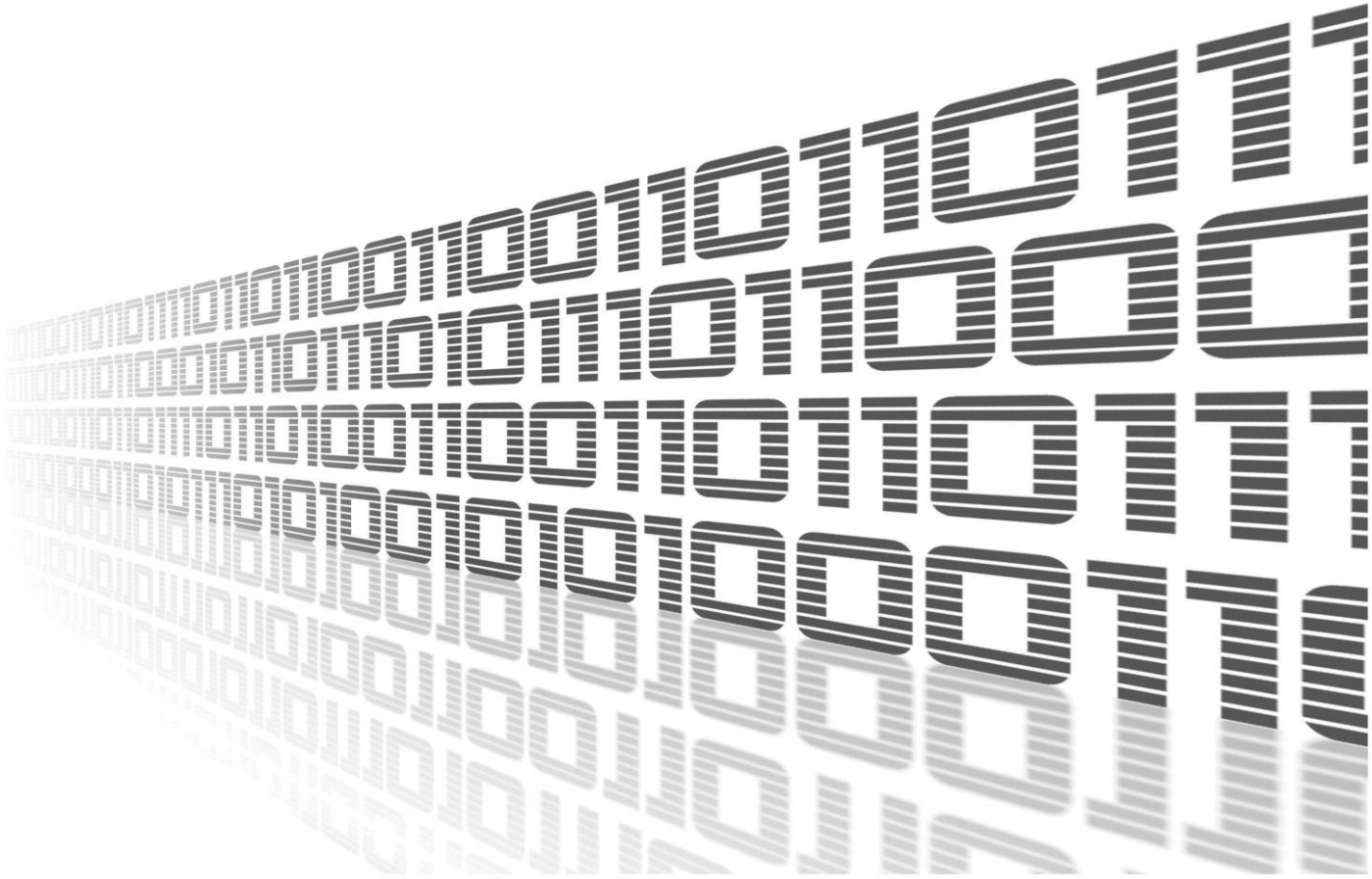
ADVANTECH

RouterApp

Protocol BGP



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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 – Useful tips or information of special interest.

Example – Example of function, command or script.

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1. Changelog

1.1 Protocol BGP 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 BGP* 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 it is possible to used the routing between autonomous systems. These systems might be perceived as a group of IP networks and routers under the control of one or more network operators that presents a common clearly defined routing policy (only one of interior gateway protocols). The routing information is exchanged between autonomous systems via border gateway. The BGP router app is based on software called Quagga. It is a routing software package that provides TCP/IP based routing services with routing protocols support RIP, OSPF and BGP.

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 *bgpd* deamon serves as an interface of the central deamon (zebra) for routing protocols (RIP, OSPF, BGP). Each deamon has its own configuration file.

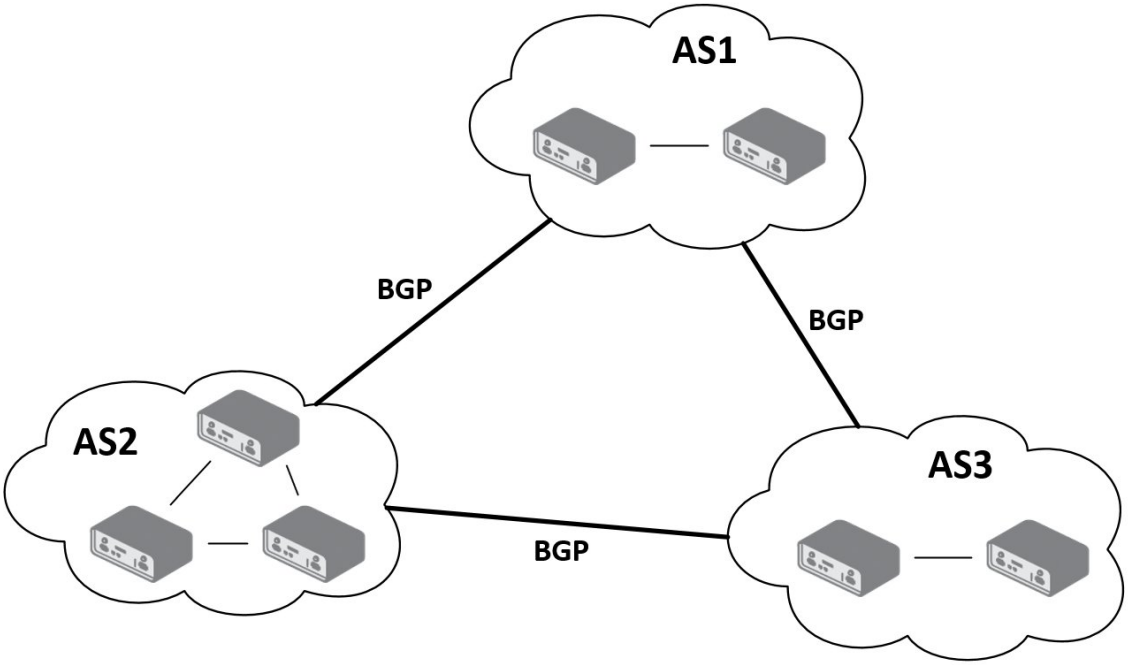

Figure 1: Model scheme

For configuration *bgpd* and *zebra* deamons are available web interfaces, which are invoked by pressing the *BGP* 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.

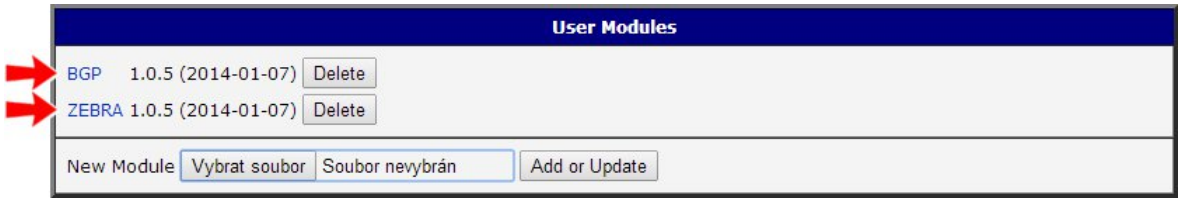

Figure 2: Choice of web interface

Important notices:

- Using telnet is vty interface of zebra and bgpd 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 *BGP* router app. Then there are mentioned examples of configuration files of *zebra* and *bgpd* deamons. In this form are entered in the configuration form in the web interface *BGP* or *ZEBRA*.

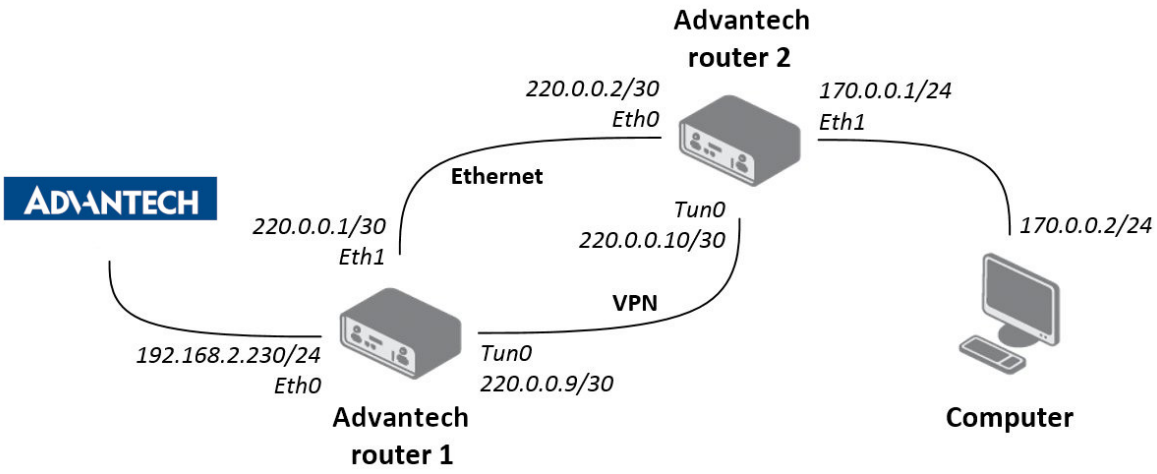

Figure 3: Example of configuration

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
!
```

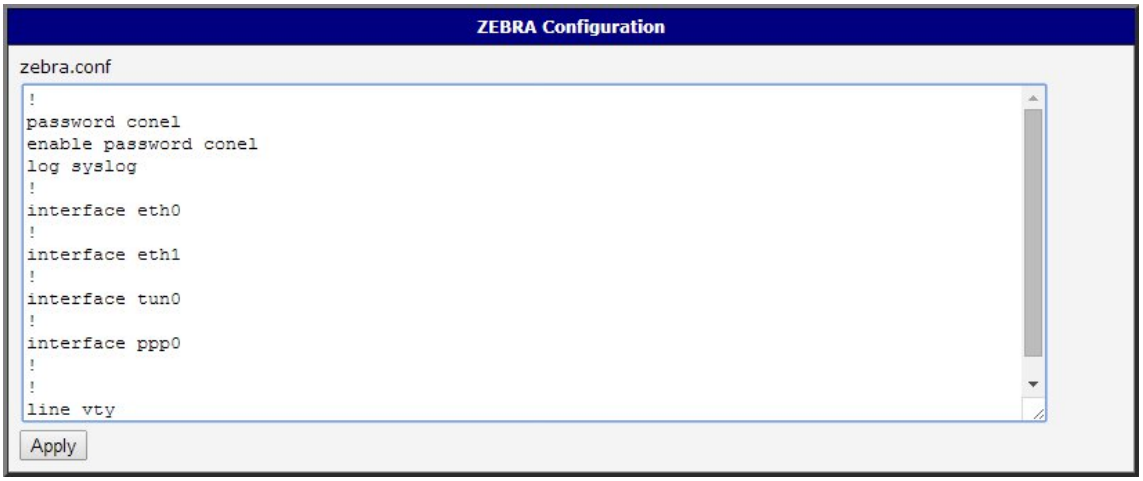

Figure 4: Configuration of zebra deamon

An example of the *bgpd.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 bgp 11111
bgp router-id 220.0.0.1
bgp log-neighbor-changes
network 192.168.2.0/24
!
neighbor 220.0.0.2 remote-as 12345
neighbor 220.0.0.2 next-hop-self
```

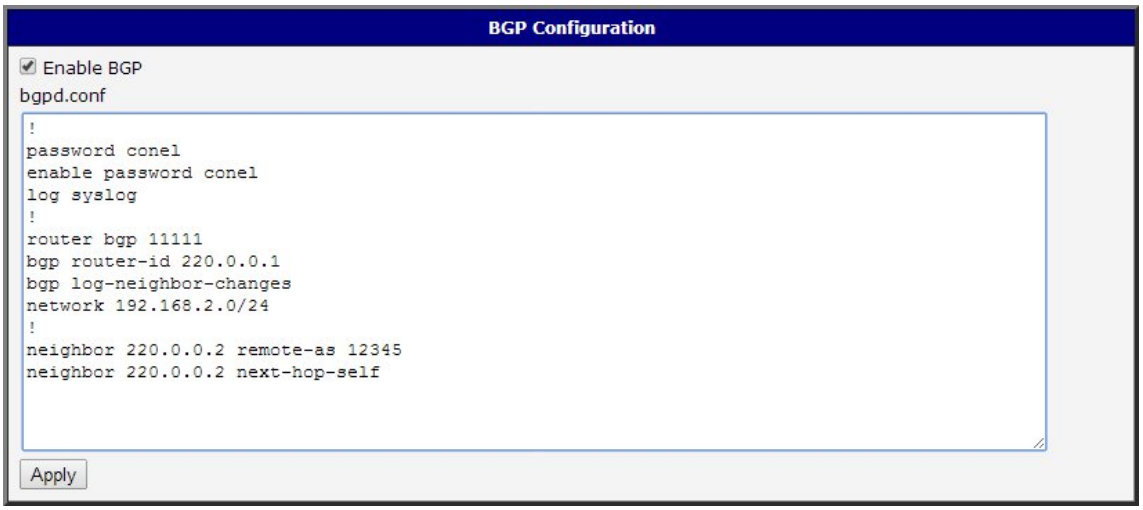

Figure 5: Configuration of bgpd deamon 1

An example of the *bgpd.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 bgp 12345
bgp router-id 220.0.0.2
bgp log-neighbor-changes
network 170.0.0.0/24
!
neighbor 220.0.0.1 remote-as 11111
neighbor 220.0.0.1 next-hop-self
```

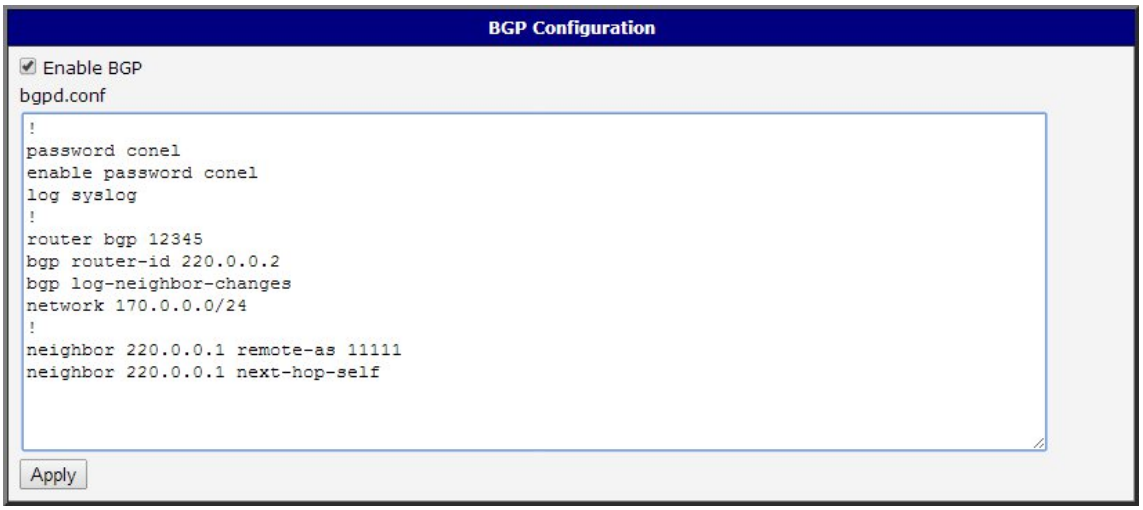

Figure 6: Configuration of bgpd deamon 2

3. Basic commands

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

Item	Description
router bgp *<ASN>*	Configures the BGP routing process for ASN (autonomous system number)
no router bgp *<ASN>*	Removes a routing process from ASN
bgp router-id *<ip-address>*	Configures a fixed router ID for a BGP-speaking router
no bgp router-id *<ip-address>*	Removes the *bgp router-id* command from the configuration file and restore the default value of the router ID
distance bgp *<1-255><1-255> <1-255>*	Allows the use of external, internal, and local distances that could be a better route to a node
no distance bgp	Returns distances to the default values (20, 200, 200)
network *<network-number>*	Specifies the list of networks for the BGP routing process
no network *<network-number>*	Removes network from the list
aggregate-address *<address>*	Creates an aggregate entry in a BGP routing table
no aggregate-address *<address>*	Disables this function
bgp log-neighbor-changes	Enables logging of BGP neighbor resets
no bgp log-neighbor-changes	Disables logging of changes
neighbor *<ip-address/peer>* remote-as *<number>*	Adds an entry to the BGP neighbor table
no neighbor *<ip-address/peer>* remote-as *<number>*	Removes an entry from the BGP neighbor table
neighbor *<ip-address/peer>* next-hop-self	Disables next-hop processing of BGP updates on the router
no neighbor *<ip-address/peer>* next-hop-self	Disables this feature
neighbor *<ip-address/peer>* version *<version>*	Sets up the neighbor's BGP version (4, 4+, 4-)
neighbor *<name>* peer-group	Defines a new BGP peer group
no neighbor *<name>* peer-group	Removes the peer group and all of its members
show ip bgp	Displays entries in the BGP routing table

Table 1: Basic commands

4. Licenses

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

BGP Licenses

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

Figure 7: 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.