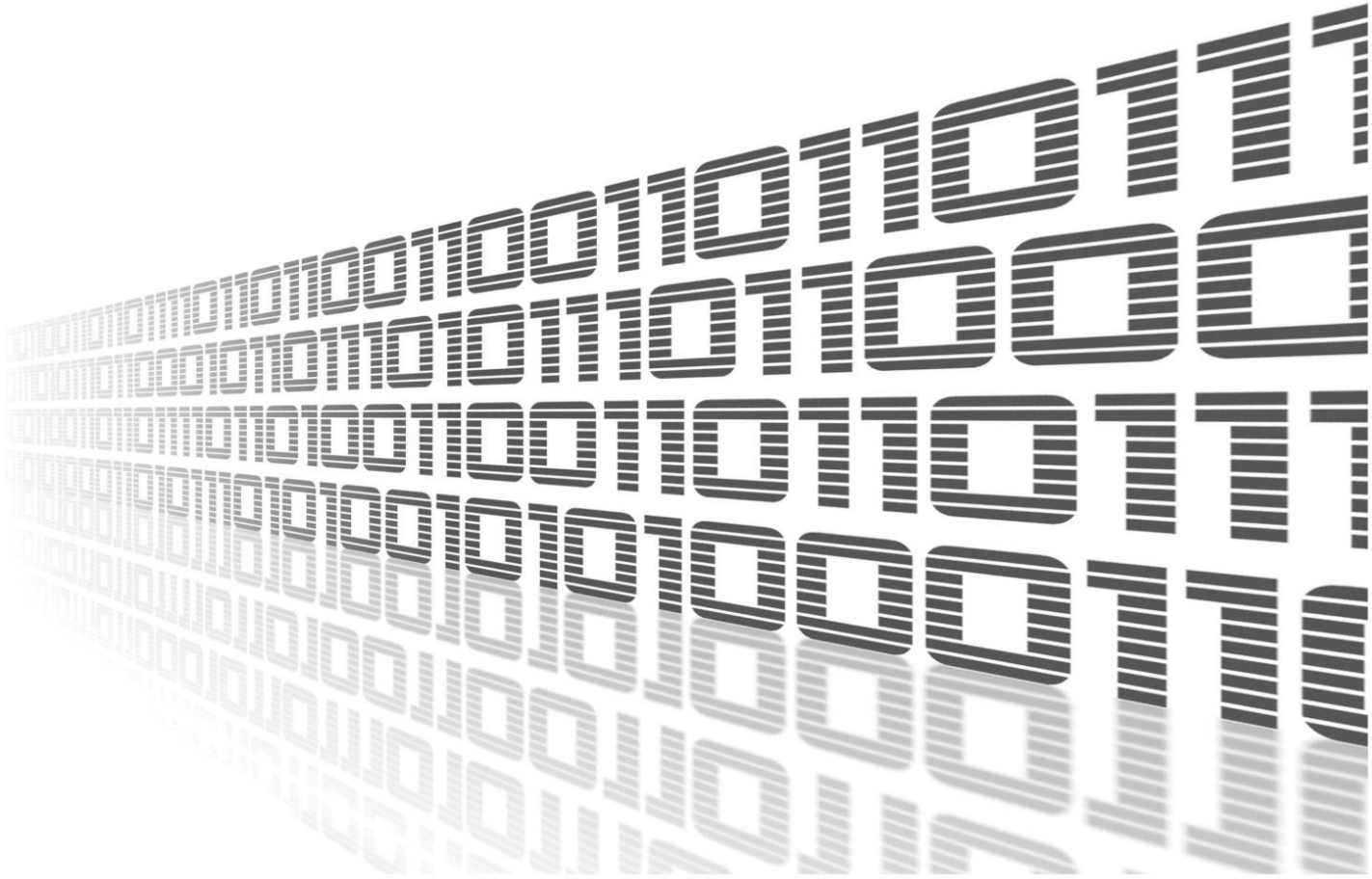
ADVANTECH

RouterApp

Protocol IS-IS



Advantech Czech s.r.o., Sokolska 71, 562 04 Usti nad Orlici, Czech Republic
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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 IS-IS 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 IS-IS* is not contained in the standard router firmware. Uploading of this router app is described in the Configuration manual (see Chapter Related Documents).

This module allows Advantech router to use IS-IS (Intermediate System – Intermediate System) routing protocol, which is designed for the exchange of routing information between routers. This protocol belongs to a family of IGP (Interior Gateway Protocol) protocols, which are designed to distribute routing information within a single autonomous system (AS). It is a link-state protocol, which means that information about the topology is exchanged between the nearest neighbours in a "flood way" (flooding). Therefore all routers have information about the entire topology within an AS and typically use modified Dijkstra's algorithm for finding optimal routes. Selecting router based on knowledge of the entire topology allows to take into account different criteria useful for QoS (Quality of Service) or Traffic Engineering.

The IS-IS 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 *isisd* deamon serves as an interface of the central deamon (zebra) for routing protocols. Each deamon has its own configuration file.

For configuration *isisd* and *zebra* deamons are available web interfaces, which are invoked by pressing the *IS-IS* 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.

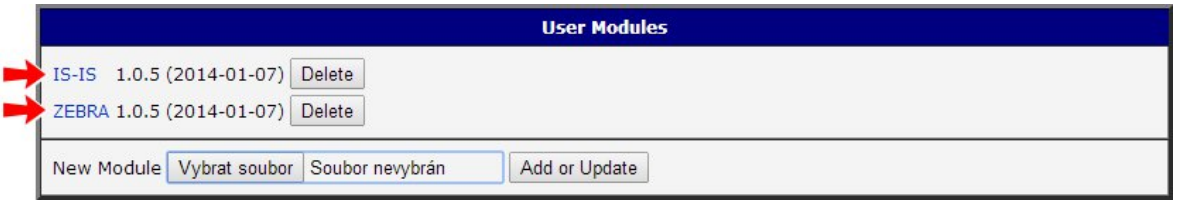

Figure 1: Choice of web interface

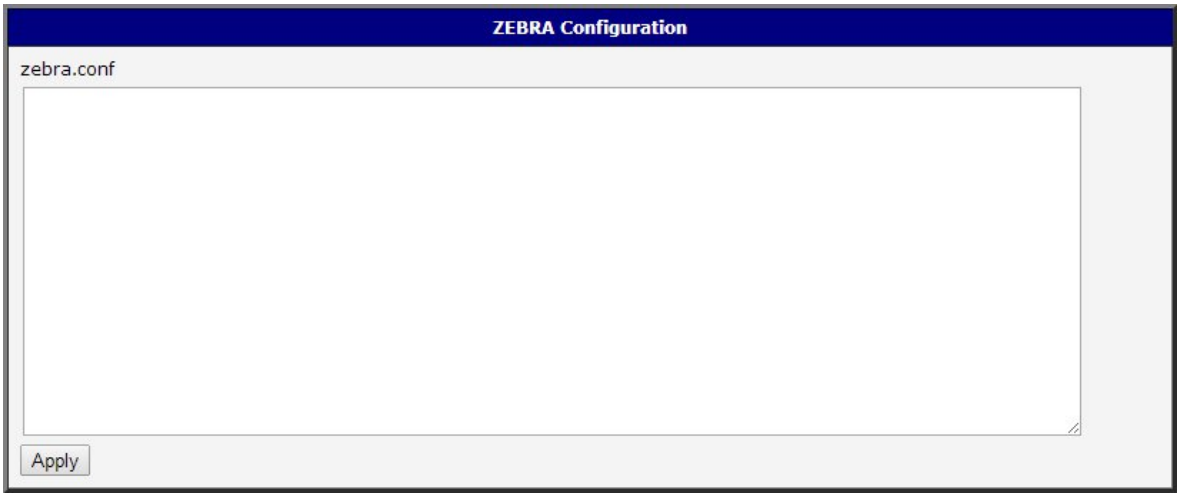

Figure 2: ZEBRA web interface

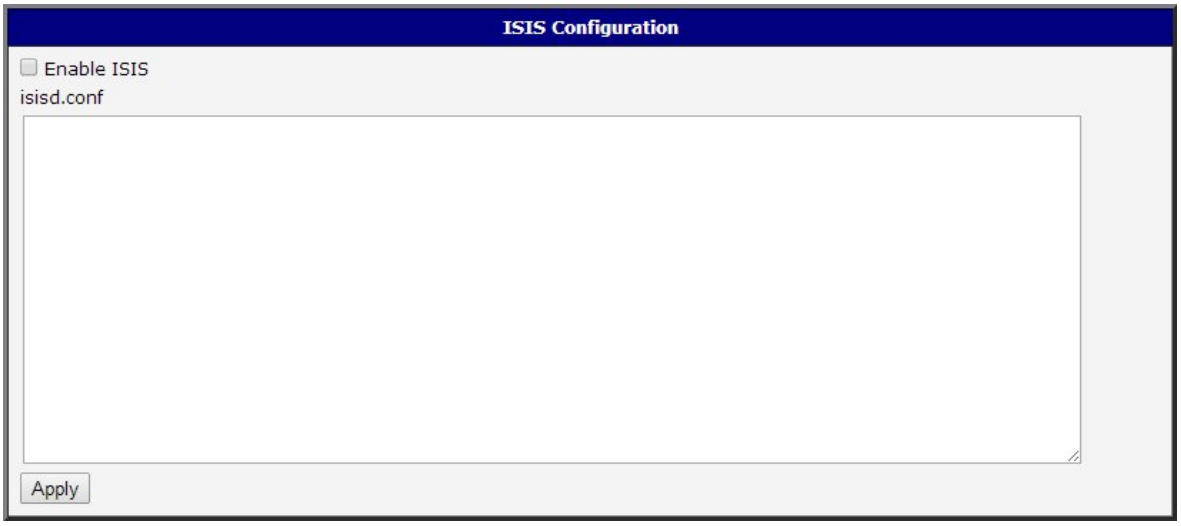

Figure 3: IS-IS web interface

Important notices:

- Using telnet is vty interface of zebra and isisd 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

An example of the *isisd.conf* configuration file:

```
! -*- isis -*-
!
! ISISd sample configuration file
!
hostname isisd
password foo
enable password foo
log syslog
!
!
router isis DEAD
 net 47.0023.0000.0003.0300.0100.0102.0304.0506.00
! is-type level-1

! -- set the lifetime either for level-1, level-2 or both
! lsp-lifetime level-1 65535
! lsp-lifetime level-2 65535
! lsp-lifetime 65535

! hostname isisd-router
! area-password foobar
! domain-password foobar

interface eth0
 ip router isis DEAD
! isis hello-interval 5
! isis lsp-interval 1000

! -- optional
! isis circuit-type level-1
! isis password lallaa level-1
! isis metric 1 level-1
! isis csnp-interval 5 level-1
! isis retransmit-interval 10
! isis retransmit-throttle-interval
! isis hello-multiplier 2 level-1
! isis priority 64
!
```

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

```
! -*- zebra -*-
!
! zebra sample configuration file
!
! $Id: IS-IS_EN.tex,v 1.3 2014/10/08 07:14:07 jan_svoboda Exp $
!
hostname Router
password zebra
enable password zebra
log syslog
!
! Interface's description.
!
!interface lo
! description test of desc.
!
!interface sit0
! multicast

!
! Static default route sample.
!
!ip route 0.0.0.0/0 203.181.89.241
!
```

3. Basic commands

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

Command	Description
area-password	Configures the IS-IS area authentication password. To disable the password, use the "no form" of this command – *no area-password*.
default-information originate	Generates a default route into an IS-IS routing domain. To disable this feature, use the "no form" of this command.
domain-password	Configures the IS-IS routing domain authentication password. To disable a password, use the "no form" of this command.
ip router isis	Configures an IS-IS routing process for IP on an interface. To disable IS-IS for IP, use the "no form" of this command.
isis circuit-type	Configures the type of adjacency. To reset the circuit type to Level I and Level 2, use the "no form" of this command.
isis csnp-interval	Configures the IS-IS complete sequence number PDUs (CSNP) interval. To restore the default value, use the "no form" of this command.
isis hello-interval	Specifies the length of time between hello packets. To restore the default value, use the "no form" of this command.
isis hello-multiplier	Specifies the number of IS-IS hello packets a neighbor must miss before the router should declare the adjacency to be down. To restore the default value, use the "no form" of this command.
isis lsp-interval	Configures the time delay between successive IS-IS link state packet transmissions. To restore the default value, use the "no form" of this command.
isis metric	Configures the metric for an interface. To restore the default metric value, use the "no form" of this command.
isis password	Configures the authentication password for an interface. To disable authentication for IS-IS, use the "no form" of this command.
isis priority	Configures the priority of designated routers. To reset the default priority, use the "no form" of this command.
isis retransmit-interval	Configures the time between retransmission of each LSP (IS-IS link-state PDU) over point-to-point links. To restore the default value, use the "no form".
isis retransmit-throttleinterval	Configures the amount of time between retransmissions of any IS-IS link-state PDUs (LSPs) on a point-to-point interface. To restore the default value, use the "no form" of this command.
is-type	Configures the IS-IS level. To reset the default value, use the "no form".
lsp-refresh-interval	Sets the link-state packet (LSP) refresh interval. To restore the default refresh interval, use the "no form" of this command.
max-lsp-lifetime	Sets the maximum time that link-state packets (LSPs) can remain in a router's database without being refreshed. To restore the default lifetime, use the "no form" of this command.
net	Configures an IS-IS network entity title (NET) for the routing process. To remove a NET, use the "no form" of this command.

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Command	Description
router isis	Enables the IS-IS routing protocol and to specify an IS-IS process. To disable IS-IS routing, use the "no form" of this command.
set-overload-bit	Configures the router to signal other routers not to use it as intermediate hop in their SPF calculations. To remove the designation, use the "no form".
show isis database	Displays the IS-IS link state database.
show isis lsp-log	Displays the Level 1 and Level 2 Intermediate System-to-Intermediate System (IS-IS) link-state packet (LSP) log of the interfaces that triggered the new LSP.
show isis spf-log	Displays how often and why the router has run a full SPF calculation.

Table 1: Basic commands

4. Licenses

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

ISIS Licenses

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

Figure 4: 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.