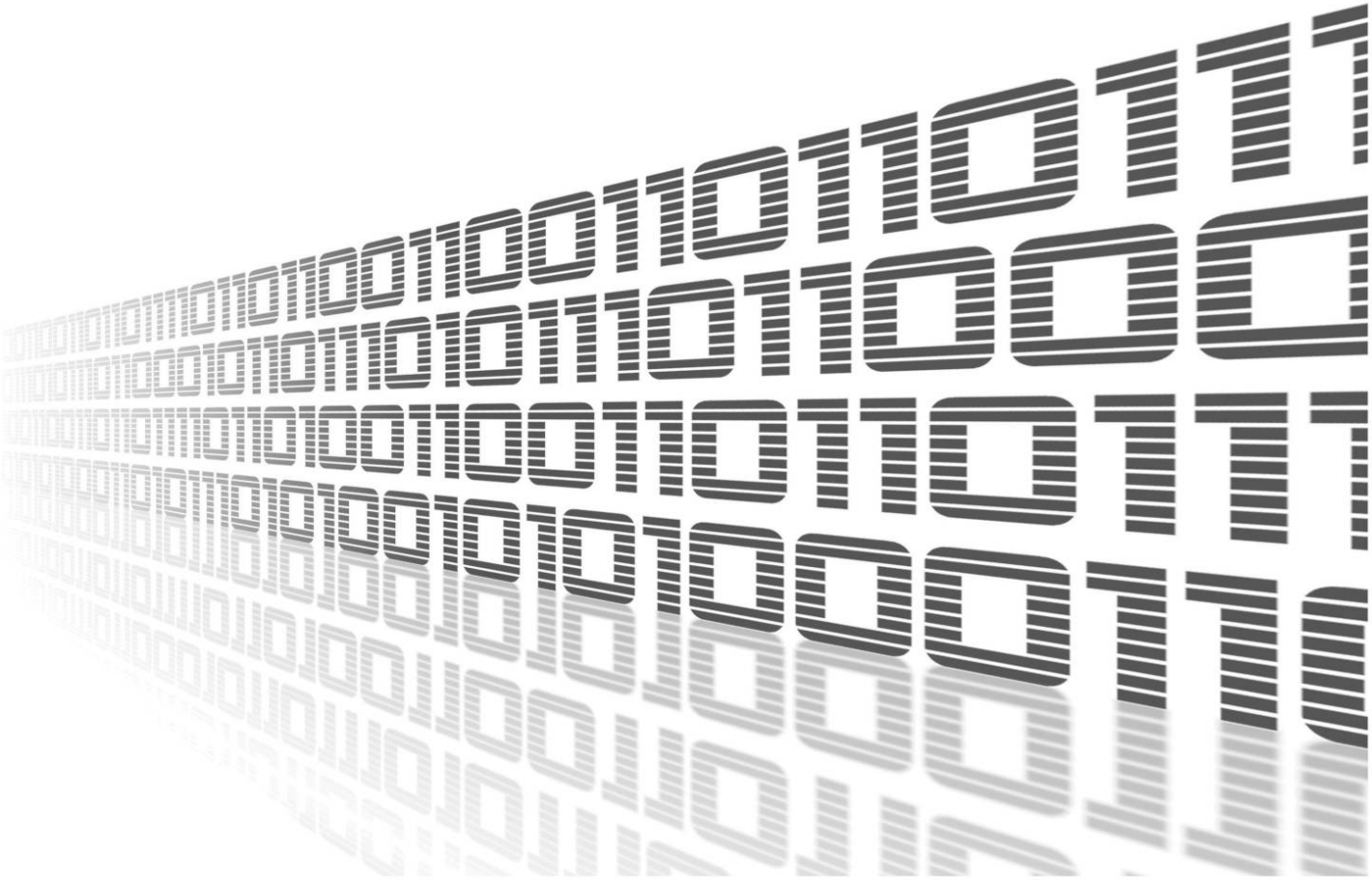
RouterApp

GPS



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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.

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1. Router App Description

This Router app is not included in the standard router firmware. Uploading this router app is described in the Configuration manual (see Chapter Related Documents).

The *GPS* (Global Positioning System) Router app allows your router to provide location and time information in all weather conditions, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites.

This router app is compatible with all Advantech routers equipped with GNSS functionality. The type of GSM/GNSS module installed in the router can be found in the GUI in *Status* → *Mobile WAN* → *Mobile Network Information* → *Model*.

For routers that share a cellular connector with the GNSS connection, diversity cellular reception is not supported when the GNSS antenna is connected.

2. Web Interface

The left part of the web interface contains the menu with pages for monitoring (*Status*), *Configuration*, *Information*, and *Customization* of the router. The *Information* block contains the *Licenses* item, where used licenses are displayed. The *Customization* block contains only the *Return* item, which switches the GPS web interface to the main router interface.

2.1 Location

If the device has an unobstructed line of sight to four or more GPS satellites, detailed information about the accurate location of the device (router) is available.

Item	Description
Current time (UTC)	Current time in hhmmss.0 format (Coordinated Universal Time)
Latitude	Geographic coordinate specifying the north-south position (in ddmm.mmmmmm$G$ format where *d* stands for degrees, *m* for minutes, and G for geographical direction [N, S])
Longitude	Geographic coordinate specifying the east-west position (in dddmm.mmmmmm$G$ format where d stands for degrees, m for minutes, and G for geographical direction [E, W])
Altitude	Height above sea level of a location (in meters)
Satellites in view	Number of satellites directly visible to the router
Fix status	Indicates data availability and quality. 0 indicates no data. A non-zero value indicates the presence of data.
Speed over ground	Current speed of the router relative to Earth's surface (in knots)
Course over ground	The actual course the router is moving along at the moment relative to Earth's surface (in degrees)
Date	Current date in ddmmyy format

Table 1: Location Information

There is a clickable item called *Show on map* at the bottom of the window that displays the exact location of the Advantech router on Google Maps in a new tab.

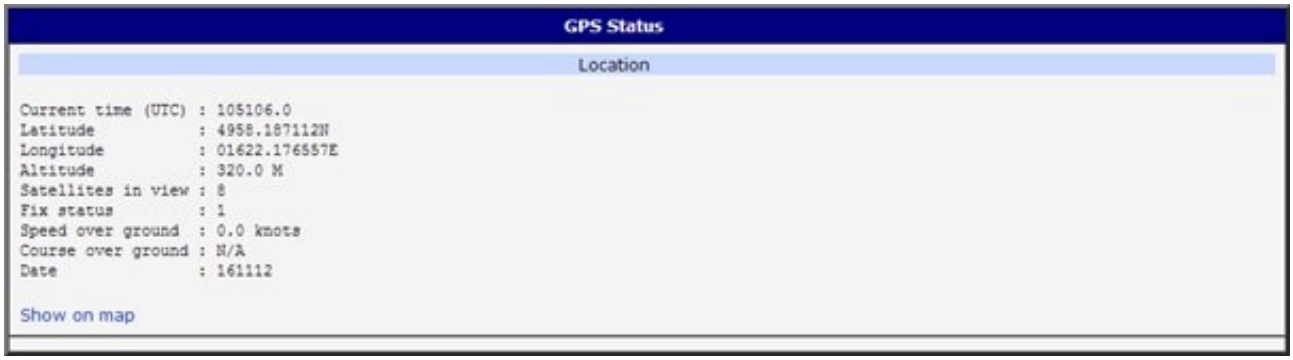

Figure 1: GPS Status – Location

2.2 System Log

In case of any problems, it is possible to view the system log by pressing the *System Log* menu item. Detailed reports from individual applications running on the router are displayed. Using the *Save* button, it is possible to save the system log to the computer.

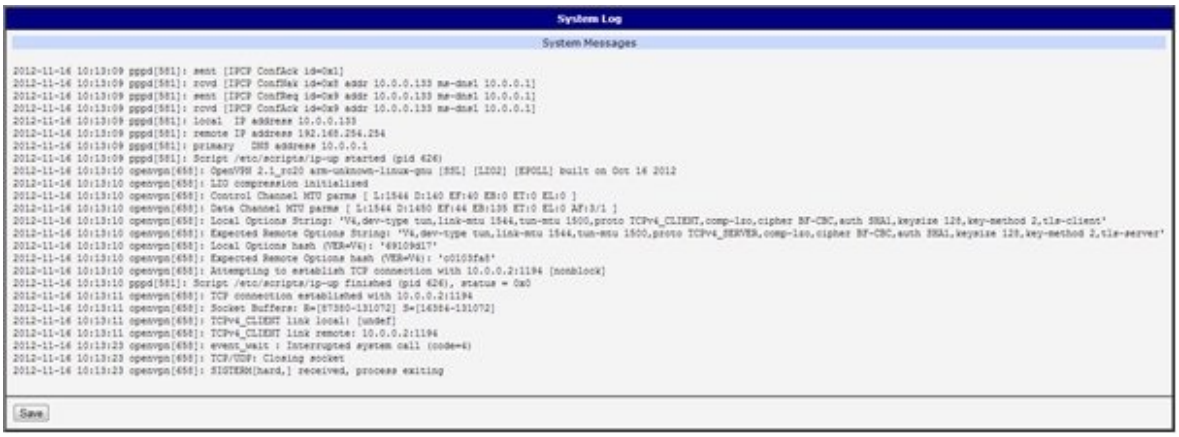

Figure 2: System Log

The System Log default size is 1000 lines. After reaching 1000 lines, a new file is created for storing the system log. After the second file reaches 1000 lines, the first file is deleted, and a new one is created.

2.3 Global

After clicking the *Global* item in the configuration part of the menu, a form appears that allows you to activate the GPS service by checking the *Enable GPS service* item. In the next part of this form, you can choose the port used for sending data from the GPS. You can select from the following options: *expansion port 1*, *expansion port 2*, *USB port*, and pseudoterminal `/dev/nmea` . Expansion port 1 and expansion port 2 are optional ports of the router. Data is stored in raw NMEA format.

The configuration form also allows the router to forward raw NMEA output to a remote socket. In this case, it is necessary to check the box in front of the "configuration line" and define the following information:

Item	Description
IP Address	IP address to which the raw NMEA output will be forwarded
Protocol	The protocol by which raw NMEA output will be sent
Port	Port on which the communication will be underway
Period if moving	Forwarding period when moving
Period if halted	Forwarding period when halted

Table 2: Forwarding Data to a Remote Socket

At the bottom of the form, you can enable the automatic reset of GPS. This is performed when location data is unavailable within a set number of minutes.

The last item configures the router's identification. When switched on, the identification string `$GPFID, RouterIdentificationString` is sent in every NMEA batch. The `+RouterIdentificationString` is the string configured in the GUI.

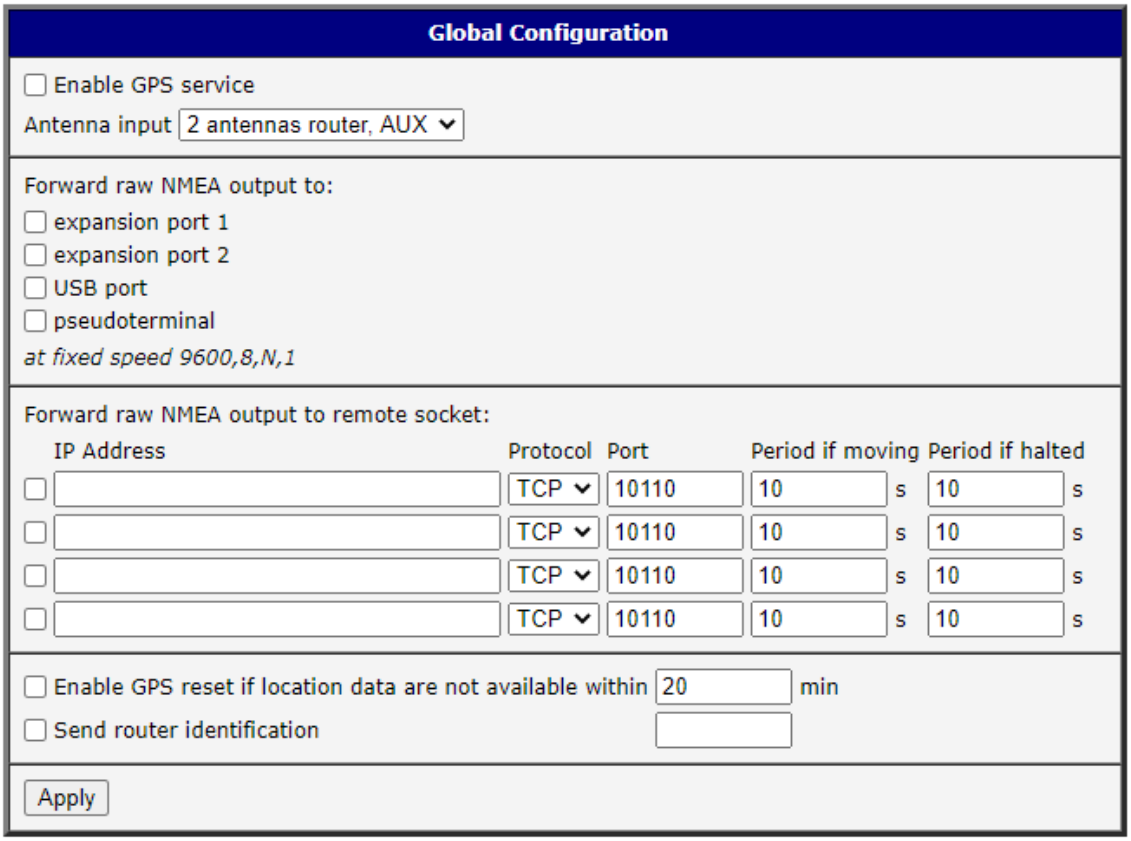

Figure 3: Global Configuration

2.4 GPSD

The GPSD form can be displayed by selecting the *GPSD* item in the configuration part of the menu. If the *Enable GPSD daemon* option is checked, the router automatically starts listening on the port specified below.

Item	Description
Inner port	Port in device dedicated for GPS
Listen port	TCP/IP port on which to listen for GPSD clients (default is 2947)

Table 3: GPSD Configuration

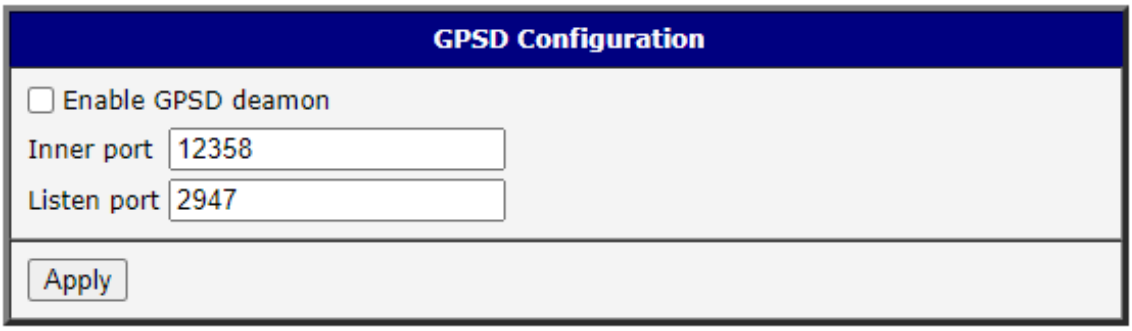

Figure 4: GPSD Configuration

2.5 SNMP

The SNMP form can be displayed by selecting the *SNMP* item in the configuration part of the menu. If the *Enable reporting to supervisory system* option is checked, the router automatically sends messages to the supervisory system at the specified periods.

Item	Description
IP Address	Destination IP address
Period if moving	Interval of sending messages to the supervisory system (in seconds) while in motion
Period if halted	Interval of sending messages to the supervisory system (in seconds) when not moving (velocity is 0)

Table 4: SNMP Configuration

For sending GPS messages, the following range of OIDs is used. The importance of individual items is described in Table 1.

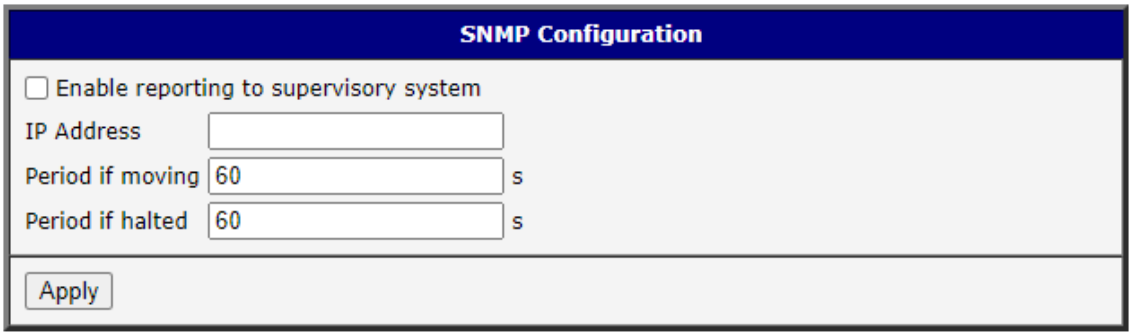

Figure 5: SNMP Configuration

OID	Designation
.1.3.6.1.4.1.30140.7.1.0	gpsTimeUTC
.1.3.6.1.4.1.30140.7.2.0	gpsLatitude
.1.3.6.1.4.1.30140.7.3.0	gpsLongitude
.1.3.6.1.4.1.30140.7.4.0	gpsAltitude
.1.3.6.1.4.1.30140.7.5.0	gpsSatellites
.1.3.6.1.4.1.30140.7.6.0	gpsFixStatus
.1.3.6.1.4.1.30140.7.7.0	gpsSpeedOverGround
.1.3.6.1.4.1.30140.7.8.0	gpsCourseOverGround
.1.3.6.1.4.1.30140.7.9.0	gpsDate

Table 5: GPS OID

2.6 Time Synchronization

The form for synchronization of the system time can be invoked by pressing the *Time Synchronization* item in the configuration part of the web interface menu. The *Enable system time synchronization* check box is used to activate automatic time synchronization. The number of hours after which the synchronization is performed must be defined in the box below.

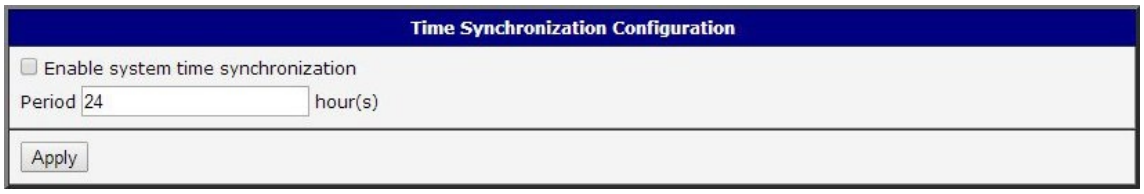

Figure 6: Time synchronization

3. Licenses

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

GPS Licenses

Project	License	More Information
gpsd	BSD	License

Figure 7: Licenses

4. Related Documents

You can obtain product-related documents on *Engineering Portal* at *icr.advantech.com* 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 *Development* page.