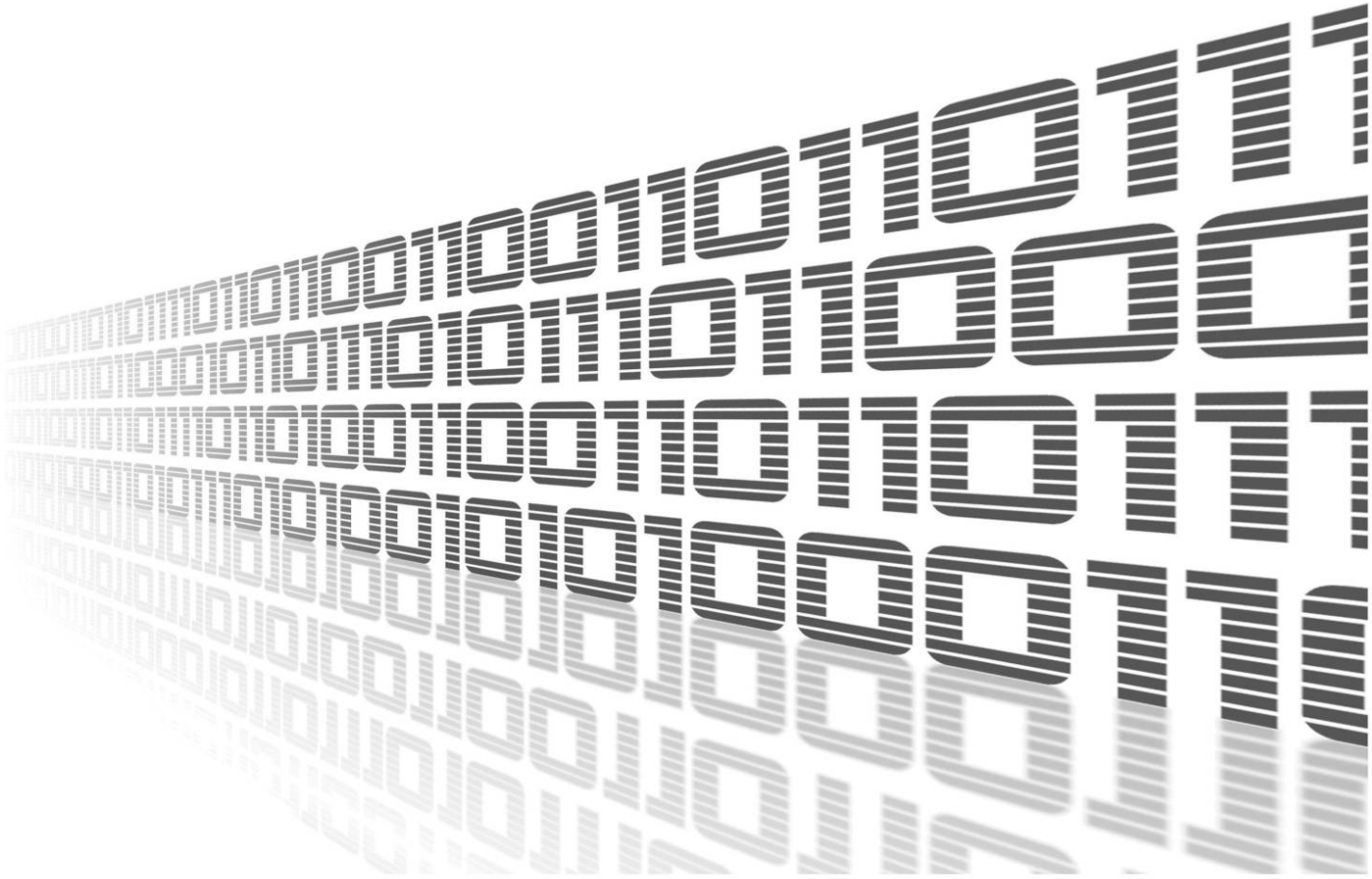
ADVANTECH

RouterApp

Ntrip Client



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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. Changelog

This Router App has been tested on a router with firmware version 6.3.10. After updating the router's firmware to a higher version, make sure that a newer version of the Router App has not also been released, as it is necessary to update it as well for compatibility reasons.

1.1 Ntrip Client Changelog

v1.0.1 (2013-08-19)

- First release

v1.0.2 (2013-08-28)

- Improved source table
- Added configurable reconnection interval

v1.0.3 (2013-10-03)

- Added sending GGA message to Ntrip Caster

v1.0.4 (2017-03-13)

- Added option manually set latitude, longtitude, height
- Enabled using of internal GPS

v1.0.5 (2019-01-02)

- Added licenses information

v1.1.0 (2020-10-01)

- Updated CSS and HTML code to match firmware 6.2.0+

v1.2.0 (2022-11-03)

- Reworked license information

v1.2.1 (2024-02-10)

- Added description and summary files
- Recompiled with ModulesSDK 2.1.2

v1.3.0 (2024-12-15)

- Fixed pseudoterminals to work with new firmware
- Changed NTRIP username and password from mandatory to optional
- Fixed parsing of NTRIP source table
- Changed source table browser (show both mountpoint and identifier)
- Increased maximum number of source table lines to 1000
- Improved init script
- Added option to set router app as source and target device
- Added option to set minimum interval of sending NMEA GGA messages to server (default 5s)
- Added information about selected mountpoint
- Added status of NTRIP client

2. Description

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

Internal GPS in our routers do not support corrections. For using NTRIP, external GPS is required.

This module is used to gain a more accurate location via Ntrip protocol (it's a general stateless protocol based on the protocol HTTP/1.1.). Each router which has enabled the router app can be considered as Ntrip Client. The task of the Ntrip Client is connecting to the Ntrip Caster (server in terms of client-server architecture) and ask for data from the selected MountPoint. If Ntrip Client (router) does not know any MountPoint to which router can connect may ask Ntrip Caster for a list of active MountPoints. In this list it is possible to find a description of data (corrections) which is able to receive. Then Ntrip Caster starts to forward GNSS corrections. Communication between Ntrip Client and Ntrip Caster is similar to communication between web browser and server (see diagram below).

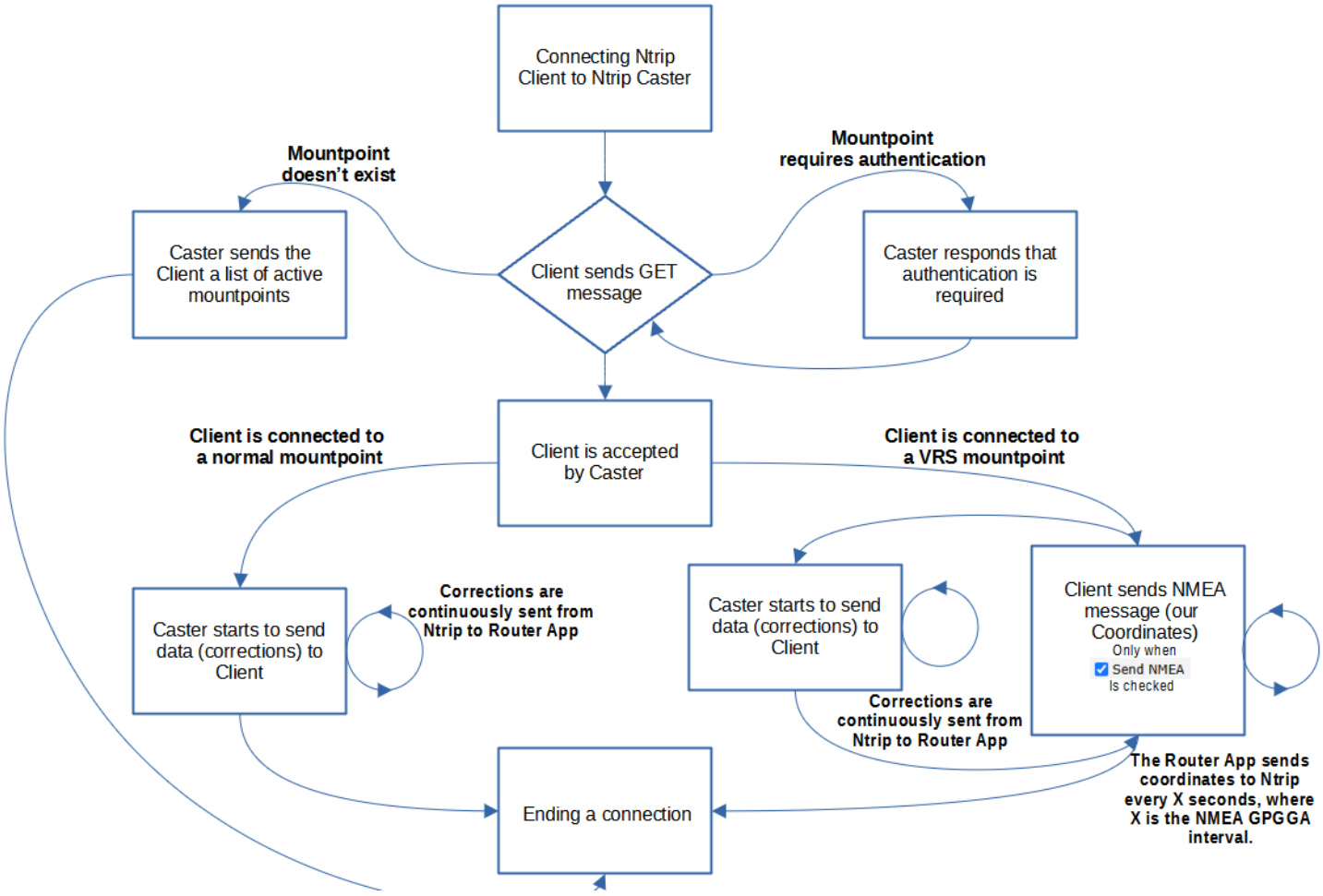

Figure 1: Communication scheme

Note: VRS MountPoint is representing the virtual reference station.

For configuration *Ntrip Client* router app is available web interface, which is invoked by pressing the module name on the *Router apps* page of the router web interface. The left part of the web interface contains the menu with pages for *Configuration*, monitoring (*Status*) and *Customization* of the module. *Customization* block contains only the *Return* item, which switches this web interface to the interface of the router.

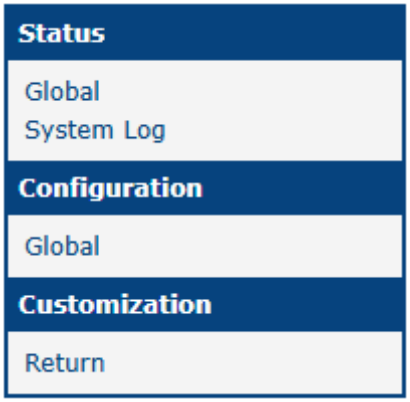

Figure 2: Menu

3. Configuration

Configuration of *Ntrip Client* router app is performed via the form on the *Global* page in the *Configuration* part of the module web interface. The first item in this form – *Enable Ntrip Client* – is used to activate these router app. Meaning of other items is described in the table below.

3.1 Connection Settings

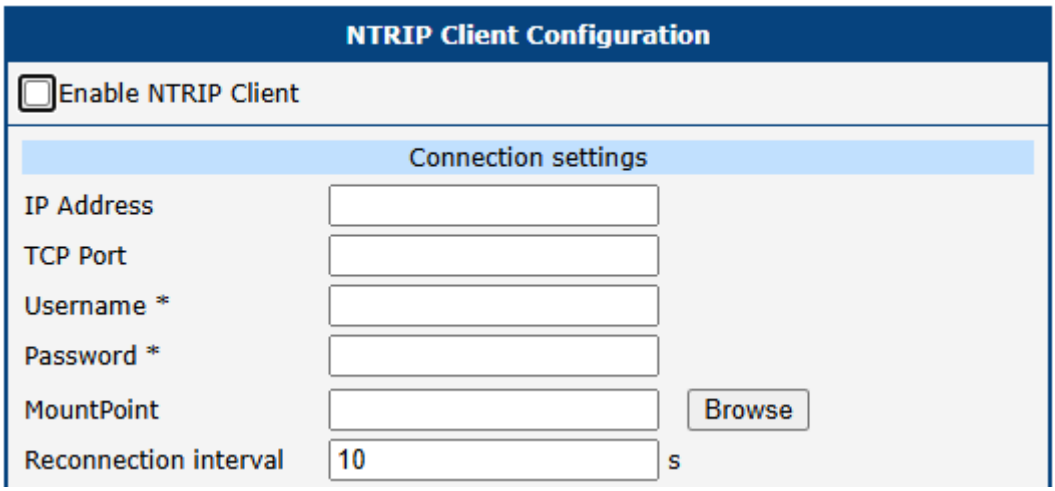

Figure 3: Connection settings

First, enter the IP address of the Ntrip Server (NTRIP Server is the machine, which send the GPS corrections, which can significantly improve the GPS accuracy) and TCP port number on which it runs (it's 2101 as a standard). Then use the *Browse* button to select the most appropriate MountPoint (the list may be loaded for a few seconds). If you know the accurate name of required MountPoint, you can enter it directly into the *MountPoint* box. *Username* and *Password* are not required, some servers requires providing credentials, others not. Finally, fill in the Reconnection interval in seconds.

Item	Description
IP Address	IP address (or domain name) of Ntrip Caster (server to which Ntrip Client connects)
TCP Port	TCP port on which the Ntrip Caster runs (2101 as a standard)
Username	User name for logging on to the selected MountPoint
Password	Password for logging on to the selected MountPoint
MountPoint	Name for the selected MountPoint. Use the *Browse* button to select MountPoint from a list of active MountPoints on the Ntrip Caster. List of active MountPoints is in <mountpoint> (<identifier>) format.
Reconnection interval	The time interval after which the module tries to connect to the Ntrip Caster if the previous connection failed (in seconds).

Table 1: Description of items in configuration form

3.2 Target Settings

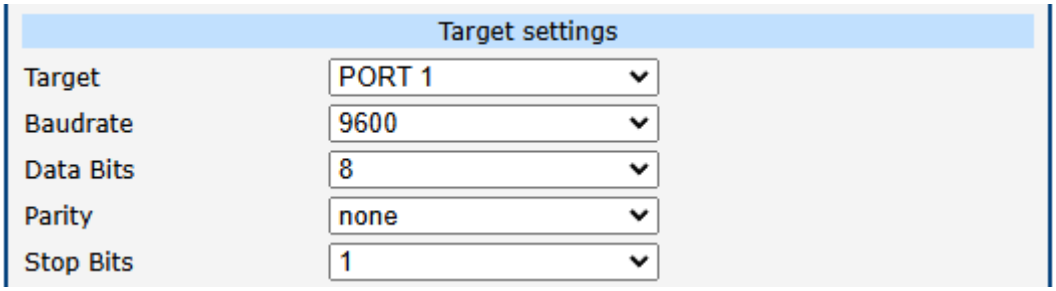

Figure 4: Target settings

The second part of the settings involves configuring the Target Settings, which define the GPS destination for sending corrections. Our routers support only external GPS, so the available options are PORT1, PORT2, or a virtual port (ROUTER APP). The virtual port option assumes that you will develop your own router app to create this port and manage data transmission as needed.

Item	Description
Target	Select target for sending corrections. Options are PORT1, PORT2 and ROUTER APP.
Baudrate	Applied communication speed
Data Bits	Number of data bits
Parity	Control parity bit: • *none* – Will be sent no parity • *even* – Will be sent even parity • *odd* – Will be sent odd parity
Stop Bits	Number of stop bits (one or two)

Table 2: Description of items in configuration form

3.3 Source Settings & NMEA Generator

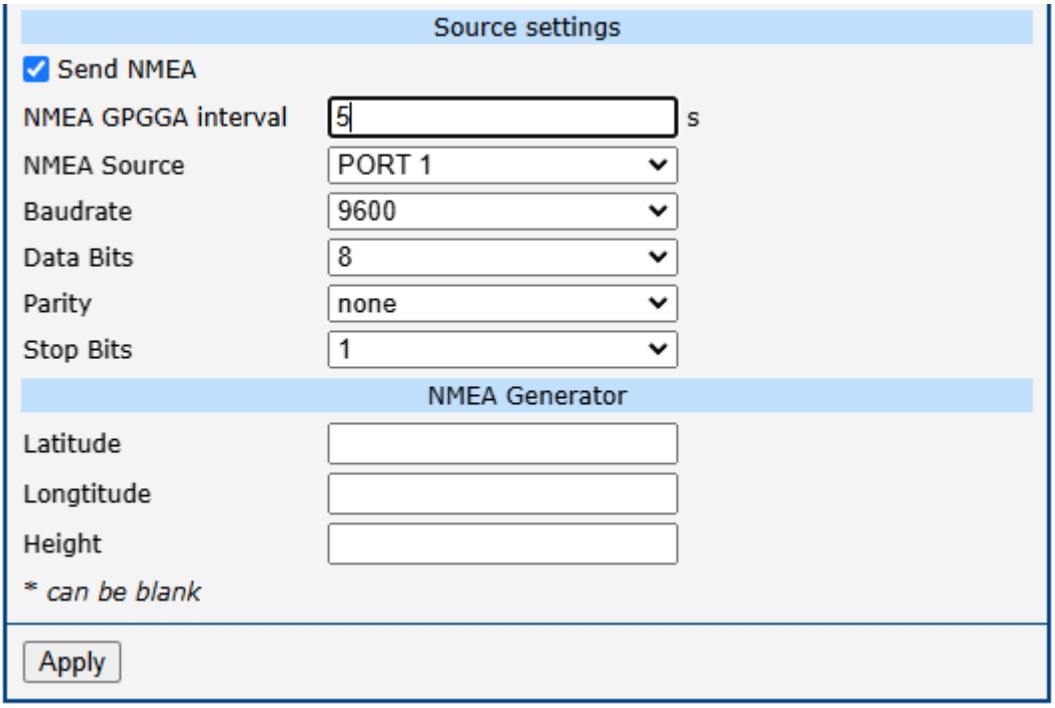

Figure 5: Source settings

Some NTRIP servers support functionality that allows you to send them your coordinates, enabling them to provide corrections tailored to your exact location. When the "Send NMEA" setting is enabled, the router's coordinates will be sent to the NTRIP server. NMEA GPGGA interval sets how often Router App sends coordinated to NTRIP server. You can put even "0", in that case the coordinates are sent as soon as they come from GPS (no interval is applied). You can choose to use an external GPS (PORT1 or PORT2), a ROUTER APP (a custom port developed via your own router app), or an INTERNAL GPS. With the internal GPS option, the router can send its coordinates obtained from its internal GPS instead of using an external GPS. Alternatively, you can manually input fixed coordinates (option NMEA GEN) using the NMEA Generator section, which is only required in this specific case.

4. Status

4.1 Global

In the Global section of status menu details about NTRIP status and Mountpoint are displayed.

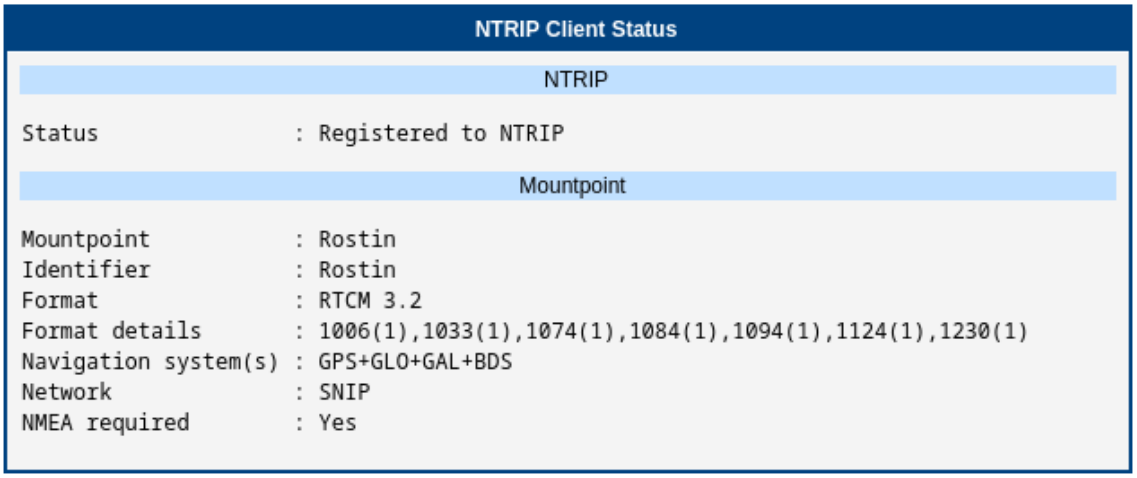

Figure 6: Status

4.2 System Log

In case of any problems it is possible to view the system log by pressing the *System Log* menu item. In the window are displayed detailed reports from individual applications running in the router. Reports relating to *Ntrip Client* module are marked with *ntripd*.

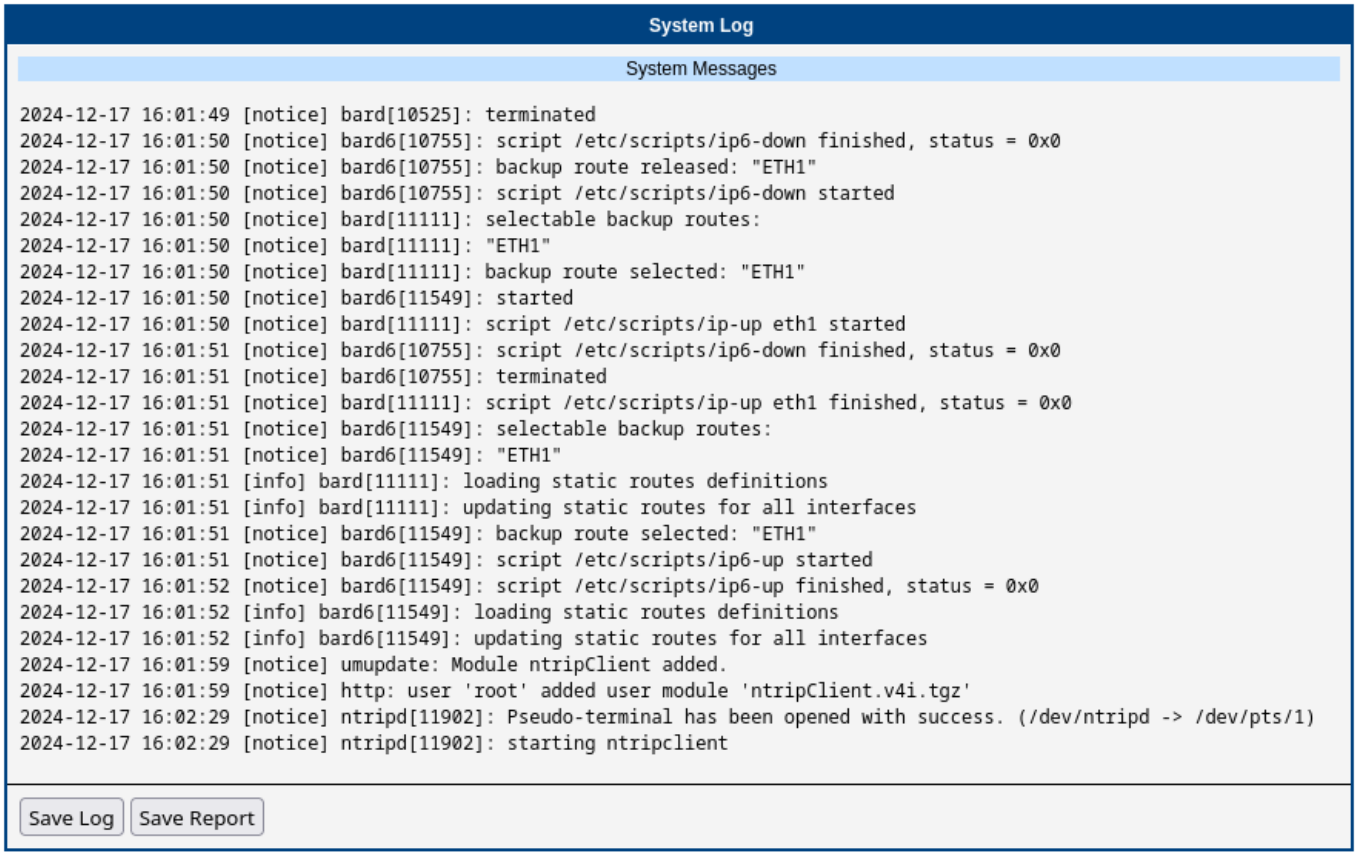

Figure 7: System log

5. 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.