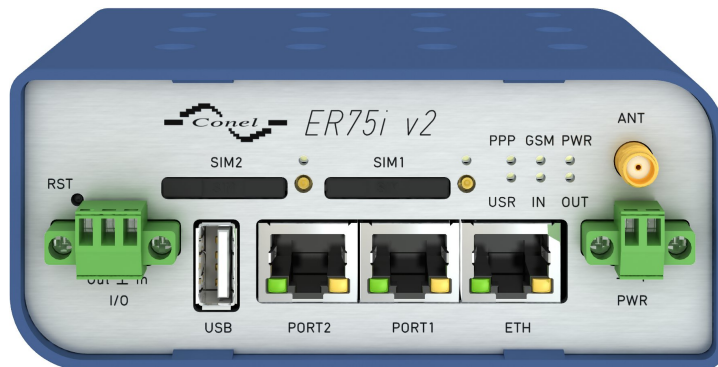


User Module

Ntrip Client

APPLICATION NOTE



ADVANTECH

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 *Ntrip Client* 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.

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 user module 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).

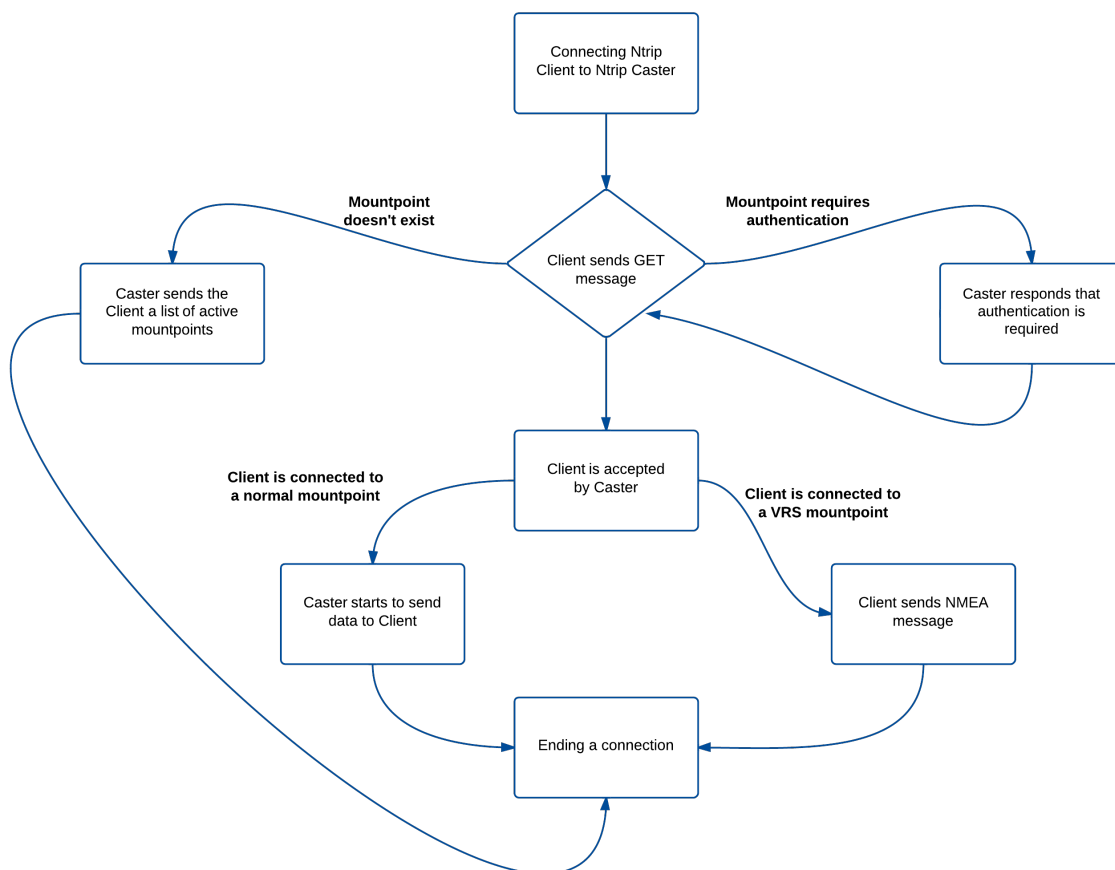


Figure 1: Communication scheme

Note: VRS MountPoint is representing the virtual reference station.

For configuration *Ntrip Client* user module is available web interface, which is invoked by pressing the module name on the *User modules* 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

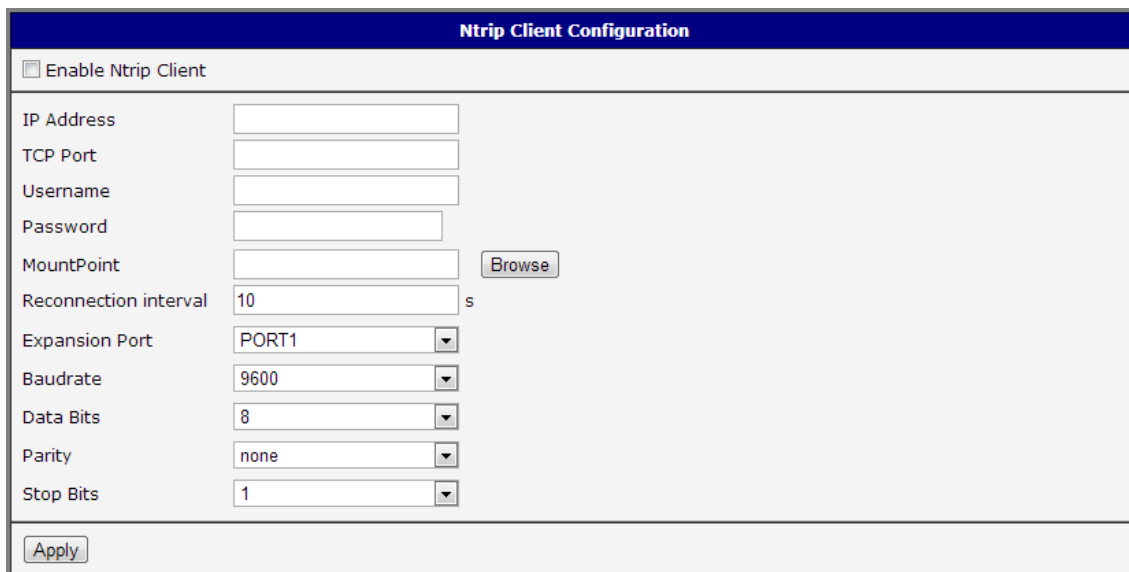
2. Configuration

Configuration of *Ntrip Client* user module 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 user module. Meaning of other items is described in the table below.

First, enter the IP address of the Ntrip Caster (*IP Address*) 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. If the MountPoint is not publicly accessible, you must enter *Username* and *Password*. Finally, fill in the information about the serial line.

Item	Description
IP Address	IP address of Ntrip Casteru (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 <i>Browse</i> button to select MountPoint from a list of active MountPoints on the Ntrip Caster.
Reconnection interval	The time interval after which the module tries to connect to the Ntrip Caster if the previous connection failed (in seconds).
Expansion port	Expansion port which is equipped with XC-RS232
Baudrate	Applied communication speed
Data Bits	Number of data bits
Parity	Control parity bit: <ul style="list-style-type: none"> • <i>none</i> – Will be sent no parity • <i>even</i> – Will be sent even parity • <i>odd</i> – Will be sent odd parity
Stop Bits	Number of stop bits (one or two)

Table 1: Description of items in configuration form



Ntrip Client Configuration

☐ Enable Ntrip Client

IP Address

TCP Port

Username

Password

MountPoint

Reconnection interval s

Expansion Port

Baudrate

Data Bits

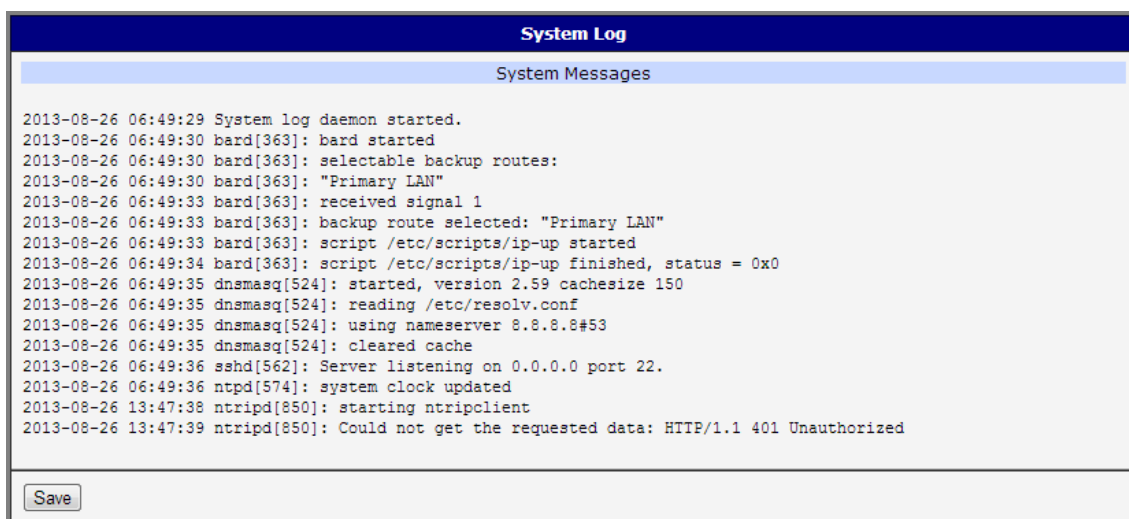
Parity

Stop Bits

Figure 3: Configuration form

2.1 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*.



System Log

System Messages

```

2013-08-26 06:49:29 System log daemon started.
2013-08-26 06:49:30 bard[363]: bard started
2013-08-26 06:49:30 bard[363]: selectable backup routes:
2013-08-26 06:49:30 bard[363]: "Primary LAN"
2013-08-26 06:49:33 bard[363]: received signal 1
2013-08-26 06:49:33 bard[363]: backup route selected: "Primary LAN"
2013-08-26 06:49:33 bard[363]: script /etc/scripts/ip-up started
2013-08-26 06:49:34 bard[363]: script /etc/scripts/ip-up finished, status = 0x0
2013-08-26 06:49:35 dnsmasq[524]: started, version 2.59 cachesize 150
2013-08-26 06:49:35 dnsmasq[524]: reading /etc/resolv.conf
2013-08-26 06:49:35 dnsmasq[524]: using nameserver 8.8.8.8#53
2013-08-26 06:49:35 dnsmasq[524]: cleared cache
2013-08-26 06:49:36 sshd[562]: Server listening on 0.0.0.0 port 22.
2013-08-26 06:49:36 ntpd[574]: system clock updated
2013-08-26 13:47:38 ntripd[850]: starting ntripclient
2013-08-26 13:47:39 ntripd[850]: Could not get the requested data: HTTP/1.1 401 Unauthorized
    
```

Figure 4: System log

3. Recommended literature

- [1] Advantech B+B SmartWorx: **v2 Routers Configuration Manual** (MAN-0021-EN)
- [2] Advantech B+B SmartWorx: **SmartFlex Configuration Manual** (MAN-0023-EN)
- [3] Advantech B+B SmartWorx: **SmartMotion Configuration Manual** (MAN-0024-EN)
- [4] Advantech B+B SmartWorx: **SmartStart Configuration Manual** (MAN-0022-EN)
- [5] Advantech B+B SmartWorx: **ICR-3200 Configuration Manual** (MAN-0042-EN)



Product related documents can be obtained on *Engineering Portal* at <https://ep.advantech-bb.cz/> address.