Ntrip Modernization and Professional Ntrip Caster

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This is a workshop!

Please ask whenever you want!
1. Ntrip and Ntrip 2

2. Ntrip 2 and SSL/TLS

3. Internet protocol version 6

4. Server software.rtcn-ntrip.org

5. Trouble shooting Ntrip setup
Ntrip

- HTTP based protocol for GNSS data transmission
- Like a web server, but for data streams
- Established system for correction data transmission
- Supported by many end-user devices
Updates:
  - Error fixes in HTTP protocol usage
  - Backwards compatible

New features:
  - Plain UDP protocol
  - RTSP - UDP protocol
  - Sourcetable filtering

Every client should use bug-fixed Ntrip2 communication!
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Features of SSL for Ntrip

- Encryption of transferred data (including username and password)
- Authentication of server or data provider
- Authentication of user
- Authentication of user equipment
- Communication privacy
- SSL is established Internet standard
Server authentication

- Server sends certificate
- Client is able to determine if server is the correct one
- Same mechanism as for online banking
- Required for safety of life applications
Client authentication

- Client sends certificate
- Server is able to determine if client has permissions
- Certificates can even replace username and password
- Individual certificates stored in hardware can identify receiver
BKG Ntrip servers

- BKG Ntrip servers (EUREF, IGS, ...) offer SSL
- Professional Caster has no direct SSL support
- Testable in web-browser: https://igs-ip.net/
- Self-signed certificates!
  - Browser warning
  - Security exception or Certificate installation
  - Certificates downloadable at http://software.rtcm-ntrip.org/
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Why IPv6

- Since 2011 no new IP addresses available
- Switching to new protocol necessary
- Standard since 1998
- $2^{128}$ instead of $2^{32}$ addresses
- Other improvements in protocol design
Dual stack

- Until transition is complete, both protocols used in parallel
- Server address ntrip.dgpsonline.eu
  - IPv4: 85.10.201.227
  - IPv6: 2a01:4f8:62:4182::4
- In Asia some networks are using IPv6 only
- After 10-20 years probably only IPv6 will be used
Who cares?

Contra:
- No real enforcement for implementation
- Address shortness not yet important in Europe and America
- IPv4 works well

Pro:
- Mobile internet increases IPv6 demand
- Providers start to deploy IPv6 to end-users
- On servers side dual stack installations are increasing
- Software updates mainly in a few network functions

Hard and software should be changed now before real demand. IPv6 will come for sure.
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BKG open source software

Create New Ticket

Properties

Summary: [blank]
Reporter: Stöcker
Description: [input field]

Type: [dropdown]
Component: [dropdown]
Keywords: [dropdown]

Priority: [dropdown]
Version: [dropdown]

I have files to attach to this ticket

Preview
Create ticket

Note: See TracTickets for help on using tickets.

Powered by Trac 0.11.2
By Edgewall Software

Visit the Trac open source project at http://trac.edgewall.org/

Alberding Gmbh
BKG open source software

- http://software.rtcm-ntrip.org/
- Software repository for open source software
  - BNC
  - ntripserver
  - ntripclient
  - rtcm3torinex
- Bug tracker to report bugs
- Wiki to collect related information
BKG open source software repository

- Always most recent software
- RTCM encoder/decoder bug-fixes
  - RTCM SSR (State space - clock & orbit corrections)
  - RTCM MSM (Multiple signal messages)
- Bug fixes and error reports welcome
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Finding the component

- Internet connection failure
- Server error (wrong name, IP, port)
- Permissions: Username or password wrong
- Data stream not available
- Wrong data format (CMR, RTCM, RTCM3, ...)

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InspectRTCM

- Connection test (Ntrip, serial, TCP, ...)
- Data analysis for
  - RTCM
  - RTCM3
  - CMR
  - Trimble RT17
  - Javad raw data
  - SiRF raw data
  - SBAS frames, GPS frames
Take a look at our developments.

http://www.alberding.eu/ (currently updated)

Use our software!