

Multi-TS Streaming Software

Application Note



Products:

- R&S®CLG
- R&S®CLGD
- R&S®SLG
- R&S®SFD

The R&S®TSSstream multi-TS streaming software streams a number of MPEG transport stream files simultaneously over a single IP interface. The individual transport streams result in a high overall bit rate. To make the streams available on a standard PC, the R&S®TSSstream software does not play the transport stream files directly from the hard disk but first loads them into the RAM. The maximum number and length of the transport streams depends solely on the PC's available RAM.

This software has previously been sold as product R&S®TSSstream and is now freely available as application note.

Note:

Please find the most up-to-date document on our homepage www.rohde-schwarz.com.

This document is complemented by software. The software may be updated even if the version of the document remains unchanged.

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1 Description

1.1 Overview

The R&S®TSSstream multi-TS streaming software streams a number of MPEG transport stream files simultaneously over a single IP interface. The individual transport streams result in a high overall bit rate. To make the streams available on a standard PC, the R&S®TSSstream software does not play the transport stream files directly from the hard disk but first loads them into the RAM. The maximum number and length of the transport streams depends solely on the PC's available RAM. For uninterrupted operation, TV receivers require a continuous signal. This is why R&S®TSSstream plays out all transport stream files at the MPEG level in a seamless loop. The PCR, PTS, DTS and continuity counter parameters are continuously restamped. When a transport stream file contains a seamless elementary stream, the receiver even delivers an interruption-free video and audio signal. R&S®TSSstream is especially suitable for feeding data into the R&S®CLG cable load generator, R&S®CLGD cable load generator DOCSIS and R&S®SLG satellite load generator. This makes it possible to reproducibly simulate real-world cable TV network configurations and satellite transponder assignments in the lab. R&S®TSSstream can also be used as a signal source to test IPTV equipment.

R&S®TSSstream features an intuitive graphical user interface. Status, memory occupancy and processor load are continuously displayed. Drag & drop operation makes it easier to work with a large number of transport streams. A special feature is the import function for configuration files from the R&S®CLG and R&S®SLG, which quickly and easily adopts these instruments' settings in R&S®TSSstream.

1.2 Key facts

- Total streaming bit rate ≥ 5 Gbit/s
- More than 128 transport streams simultaneously
- All MPEG transport stream formats

1.3 Benefits and key features

1.3.1 Streaming of multiple MPEG transport streams over IP

- Feeding of data into the R&S®CLG, R&S®CLGD, R&S®SFD and the R&S®SLG
- Simulation of real-world network configurations in the lab
- Testing and stress testing of IPTV equipment

1.3.2 Seamless playout at the MPEG level

- I Interruption-free receiver operation by restamping PCR, PTS, DTS and continuity counter in all transport streams
- I Channel scan function test using transport streams with NIT
- I Service-level receiver tests using transport streams with continuous elementary stream

1.3.3 Convenient operation thanks to straightforward graphical user interface

- I Overview of current transport stream status, total streaming bit rate, memory occupancy and processor load
- I Intuitive drag & drop operation
- I Import of R&S®CLG/R&S®SLG configuration files

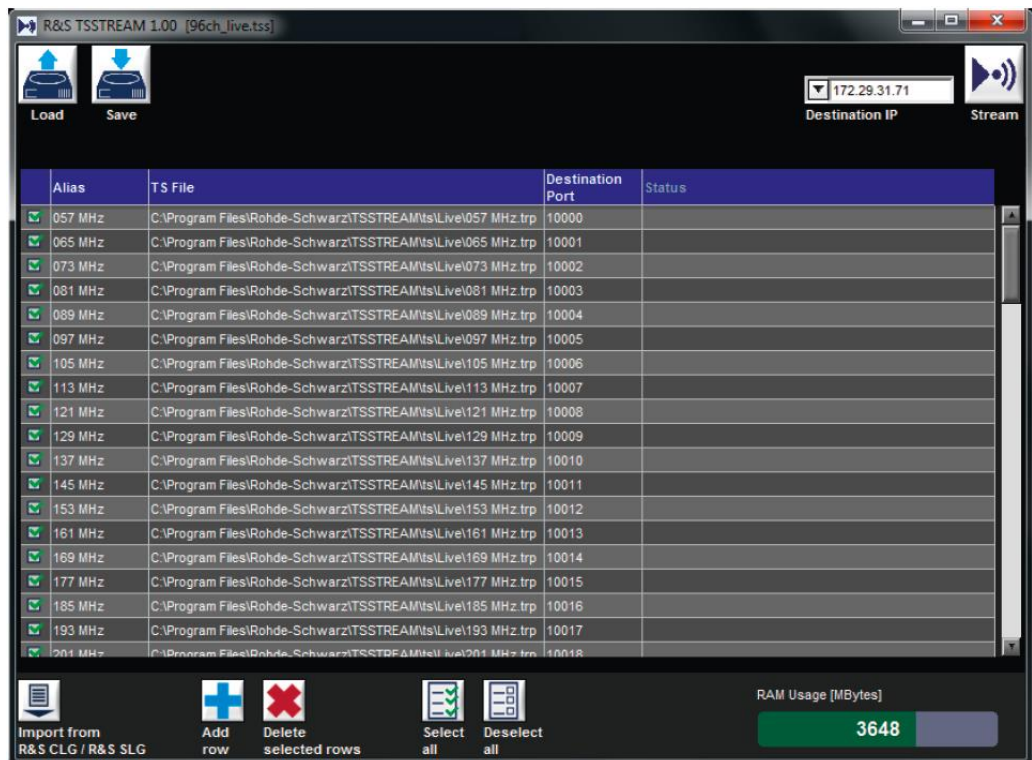


Fig. 1-1: Configuration view



Fig. 1-2: Streaming view

2 Specifications

Heading		
Maximum output data rate	with Intel® i7-3770 CPU	> 5.0 Gbit/s total data rate of all streams, > 1.7 Gbit/s per stream
Total available memory for TS files		total available RAM minus 500 Mbyte system reserve
Size of input TS files and loop time of output streams	32 Gbyte RAM and 96 output streams, all with different content	max. 328 Mbyte per TS file, yields 52 s loop time at 50 Mbit/s
	32 Gbyte RAM and 96 output streams, all with identical content	max. 31.5 Gbyte per TS file, yields 84 min loop time at 50 bit/s
Streaming protocol		MPEG TS over UDP/IP
Seamless loop at MPEG-2 TS level	for unencrypted TS files	restamping of PCR, PTS, DTS and continuity counter
	for encrypted TS files	restamping of continuity counter
TS packet length	input	188 byte, 204 byte, 208 byte
	output	188 byte

System requirements		
Operating system		Windows 7, 64 bit
CPU		multicore recommended: Intel® i7-3770 or better
RAM		min. 1 Gbyte recommended: ≥ 8 Gbyte
Hard disk capacity		≥ 30 Mbyte free memory
Display resolution		min. 800 × 600 pixel SVGA, 256 colors
Ethernet interface		network adapter matching the streaming target device
User rights		administrator rights for installation

3 Installation and operation of the software

Download files “TSSStream_ReleaseNotes.pdf”, “TSSStream_Setup_V1_05.zip” and “TSSStream_Manual.pdf” from the application note 1GP113 web site.

For the installation, follow the instructions in the release note.

For the operation, please see the separate manual.

With the installation and launch of the software, the user acknowledges the Terms and Conditions for royalty-free Products (see document “Terms_of_use_gratissoftware_en.pdf”).

4 Ordering information

Designation	Type	Order No.
Cable Load Generator	R&S®CLG	2116.9170.02
DOCSIS Cable Load Generator	R&S®CLGD	2118.6956.02
Satellite Load Generator	R&S®SLG	2116.9193.02
DOCSIS Signal Generator	R&S®SFD	2118.7400.02

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Regional contact

Europe, Africa, Middle East
+49 89 4129 12345
customersupport@rohde-schwarz.com

North America
1 888 TEST RSA (1 888 837 87 72)
customer.support@rsa.rohde-schwarz.com

Latin America
+1 410 910 79 88
customersupport.la@rohde-schwarz.com

Asia Pacific
+65 65 13 04 88
customersupport.asia@rohde-schwarz.com

China
+86 800 810 82 28 | +86 400 650 58 96
customersupport.china@rohde-schwarz.com

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