



Assignment-2

RTSP Client



Assignment-2 Motivation

- ▶ Understanding the concepts of RTSP protocol
 - Questions like: why some messages carries a specific header?
- ▶ Understanding the working of Text Based Encoding
 - Parsing text based protocols
 - Can give the required knowledge to design a text based protocol (if in future, you face such a need)
- ▶ The assignment can serve as a useful tool
 - Collects signalling messages
 - Collects media traffic
 - From media traffic dump, one can calculate RTP packet loss %



RTSP Client

- ▶ **You need to build a RTSP Client**
 - Signalling transport MUST support: TCP
 - Media transport MUST be RTP/UDP
- ▶ **Interoperate with a real world RTSP server**
 - A RTSP server is run at Netlab at 130.233.154.184:8554
 - Sample File
 - File name hosted by the server is **song1.wav**
 - accessible as **rtsp://130.233.154.184:8554/song1.wav**
- ▶ **In Short:** Given a file name hosted at the RTSP server run at Netlab
 - Your program should successfully establish session
 - Receive the media traffic (RTP/RTCP)



Command Line Options

```
./RTSPClient -t 10.10.3.4:8866 -m song.wav -s msgLog.txt -r rtpDmp.rtp
```

- Target RTSP server address (**-t**)
- Media File Name(the client is interested in) (**-m**)
rtsp://130.233.x.y:8866/**song.wav**
- File Name where signalling messages are dumped (**-s**)
- File Name where media data(RTP pks) are dumped(**-r**)
- Program terminates
 - when session ends
 - Ctrl+C



Sample Interaction

(i) Client ---- sends OPTIONS ----> Server

The first line of the OPTIONS message contains

<rtsp://10.10.3.4:8866/song.wav>

(ii) Client ---- sends DESCRIBE ----> Server

The response from server carries SDP message with connection and media parameters

(iii) Client ---- sends SETUP ----> Server

This interaction carries information related to media port no.

(iv) Client ---- sends PLAY ----> Server

The server starts sending the media streams

(v) Client ---- sends TEARDOWN ----> Server

The server ends the session. Releases the resources held by the session

For all the valid RTSP requests server responds with 200 OK

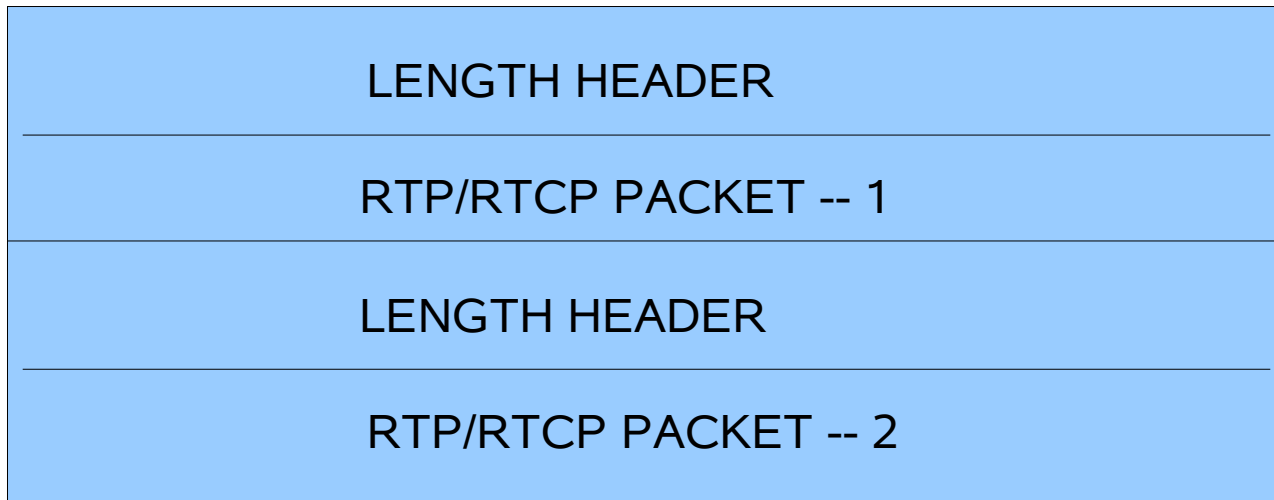
(For the assignment purpose -> PAUSE message not Mandatory to implement)



RTP/RTCP DUMP File Format

- ▶ Dump the received RTP/RTCP packets into a file
- ▶ Before writing RTP/RTCP packet into the file, append LENGTH header
- ▶ LENGTH header stores the value of the length of the RTP packet
 - LENGTH header can be 2 or 4 bytes (but 2 byte is sufficient)

File Format:





Firewalls ..

- ▶ Some networks block UDP traffic
- ▶ So, if you are not receiving media – you may be behind a firewall
- ▶ For assignment purposes:
 - Machines in Maari-A has been tested to receive the streams from 130.233.154.184(RTSP server address)
 - We had made special request to TKK's IT department.
 - Machines in other rooms of Maarintalo MAY NOT allow UDP from outside network.



Others...

- Deadline: One Final Deadline for both Assignment 2 and 3
 - January 9th 2009 (No extension possible)
 - Start Early
- The Final third assignment is a **proper extension** to the second assignment. So, build it in a way that it can be extended.
- An Initial Overview of the third assignment:
 - A SIP Client(ex: kphone) need to talk to your program(Task-3) and the media stream from the RTSP server need to be directed to the SIP client.
(a kind of **dial-a-song** service)
RTSP Server <---> |Task-2 + Task-3| <-----> SIP Client
- More information would be provided when announcing the third assignment.