# CS-349 Networks Lab

## Assignment 2: Analysing network packets using Wireshark

**Submission Deadline: 11:55 PM on Wednesday, 21 February, 2018 (Hard Deadline)**

Wireshark is a packet sniffer and network protocol analyzer tool. It helps to capture network packets and understands the structure of different networking protocols.

### Instructions:

⇒ Install Wireshark (www.wireshark.org) and learn how to capture packets and filter the required content.

⇒ Specific application is assigned to each student (refer Table I below). Each student needs to collect the traces for the assigned application using Wireshark.

⇒ You should carry out your experiments across different network conditions including different time(s) of the day and locations (e.g., lab or hostel etc).

⇒ It is advisable to provide only trace based description while answering the questions. While answering, provide snapshots of the traces in the report and highlight the content as and when required.

⇒ If something is missing/incorrect in a problem description, clearly mention the assumption with your answer.

⇒ Be precise with your answers; there is no credit for being unnecessarily verbose (may award you negative marks for the same). Unless specified otherwise, do not describe about the tool or application or protocol in general.

### Questions:

1. List out all the protocols used by the application at different layers (only those which you can figure out from traces). Study and briefly describe their packet formats.

2. Highlight and explain the observed values for various fields of the protocols. Example, Source or destination IP address and port no., Ethernet address, protocol number, etc.

3. Explain the sequence of messages exchanged by the application for using the available functionalities in the application. For example: upload, download, play, pause, etc. Check whether there are any handshaking sequences in the application. Briefly explain the handshaking message sequence, if any.

4. Explain how the particular protocol(s) used by the application is relevant for functioning of the application.

5. Calculate the following statistics from your traces while performing experiments at different time of the day: Throughput, RTT, Packet size, No. of packets lost, number of UDP & TCP packets, number of responses received with respect to one request sent. Report the observed values in your answer, preferably using tables.

6. Check whether the whole content is being sent from same location/source. List out the IP addresses of content providers, if multiple sources exist and explain the reason behind this.

**Submit a soft copy of the report, preferably PDF, together with your collected traces in a zipped form on Moodle. The name of the zip file should be like "Your_Rollno.zip" (example *130101002.zip*). Files submitted without proper naming format will not be evaluated. If your trace file size is larger than 2MB (as you won't be able to upload the file in Moodle), you are advised to provide the Drive/Dropbox link of the traces in your report.**

**Note: Report should not contain more than 6-7 pages. Copy cases will be strictly punished by awarding "ZERO" Marks.**

# Table – I: Applications assigned to each student (Updated Table)

‡ - uploading and downloading videos | Ψ - use Remote desktop software like Team Viewer | ♣ - uploading and downloading large files

| Application Assigned | Student Roll Number | Student Name |
|---|---|---|
| Dailymotion ‡ | 150101001 | ABHAY KUMAR |
| | 150101012 | AYUSH JAIN |
| | 150101024 | GOURAV |
| | 150101034 | MAYANK YADAV |
| | 150101044 | PARUCHURU SRIKAR |
| | 150101057 | SARTHAK TRIPATHI |
| | 150101068 | SHIVAM GUPTA |
| | 150101078 | SURABHI GUPTA |
| | 150123001 | ABHINAV GUPTA |
| | 150123011 | DEEPANSH GARG |
| | 150123022 | MAYANK KAGLIWAL |
| | 150123035 | SAI VARDHAN REDDY GOURAVARAM |
| | 150123045 | VAIBHAV MOTWANI |
| DC++ ♣ | 150101002 | ABHISHEK GOYAL |
| | 150101013 | AYUSH SINGH |
| | 150101025 | GOURIKA BANG |
| | 150101035 | MOHIT KUMAR |
| | 150101045 | PATOLIYA MEETKUMAR KRUSHNADAS |
| | 150101058 | SASWATA DE |
| | 150101069 | SHIVRAM N GOWTHAM |
| | 150101079 | TAMILSELVAN S |
| | 150123002 | ACHINTYA SINGH |
| | 150123012 | DIVIJ CHOPRA |
| | 150123023 | MD IMTIYAZ |
| | 150123036 | SAMAR SHIVKUMAR DESHMUKH |
| | 150123046 | AYUSH SHARMA |
| Dropbox ♣ | 150101003 | ABHISHEK KUMAR |
| | 150101014 | AYUSH SONI |
| | 150101026 | HARSHIT BANSAL |
| | 150101036 | MUDDADA NITESH KAMAL |
| | 150101046 | PIYUSH JAIN |
| | 150101059 | SATTI SAI CHANDAN REDDY |
| | 150101070 | SHRADHA PRUTHI |
| | 150101080 | VADLAMUDI SONY VENKATESH |
| | 150123003 | ADITYA SINGH RATHORE |
| | 150123013 | HARSHMEET SINGH |
| | 150123024 | MOHAMMED BILAL GIRACH |
| | 150123037 | SANGEET CHANDALIYA |
| | 150123047 | SHASHANK OBEROI |
| | 150101004 | ABOTHULA RAKESH |
| | 150101015 | BHAVYA BANSAL |
| | 150101027 | I NARASIMHA REDDY DILIP KUMAR |
| | 150101037 | MUKKOTI ANIL KUMAR |
| | 150101047 | PRASHANSI KAMDAR |
| | 150101060 | SATYA PRAKASH |

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|---|---|---|
| **Google Hangout** | 150101071 | SHUBHAM JINDAL |
| | 150101082 | RITVEEKA VASHISTHA |
| | 150123004 | AKASH MAHALIK |
| | 150123014 | HEMANT KUMAR JANGIR |
| | 150123025 | MOTAPARTHY SAI KRISHNA PRATEEK |
| | 150123038 | SANJOG AGRAWAL |
| | 150123048 | OJASVIN SOOD |
| **Live Sports Streaming** | 150101005 | AMAN AGARWAL |
| | 150101017 | BISHWENDRA CHOUDHARY |
| | 150101028 | JIGNYASU RASESH CHASMAWALA |
| | 150101038 | MUKUL VERMA |
| | 150101050 | PULAK KULI |
| | 150101061 | SAURABH |
| | 150101072 | SHUBHAM SINGHAL |
| | 150101083 | JOY CHOPRA |
| | 150123005 | ARPAN GUPTA |
| | 150123015 | HITEN SETHIYA |
| | 150123027 | NIKITESH SONEJI |
| | 150123039 | SAVYA SINDHU GUPTA |
| | 150123049 | ASHISH KUMAR PODDAR |
| **NPTEL/ Coursera video lectures** | 150101006 | ANIRUDH SHARMA |
| | 150101018 | BOPPANA AKHILESH |
| | 150101029 | KATTA YATHEENDRA MOULI |
| | 150101039 | N ABHINAV REDDY |
| | 150101051 | REDDI HAREESH |
| | 150101062 | SAURABH |
| | 150101073 | SHUBHANSHU VERMA |
| | 150101084 | GAURAV NAKUM |
| | 150123006 | AYUSH GOYAL |
| | 150123017 | KODI DIGVIJAY YADAV |
| | 150123028 | NITESH KERKETTA |
| | 150123040 | SUNIL BENIWAL |
| | 150123050 | YUGANSH BHATNAGAR |
| **Online games** | 150101008 | ANKIT VYAS |
| | 150101019 | CHINMOY JYOTI KATHAR |
| | 150101030 | KRISHNA KUMAR |
| | 150101040 | NALABOLU RAJENDHAR REDDY |
| | 150101052 | ROHAN AGGARWAL |
| | 150101063 | SAURAV KUMAR KEJRIWAL |
| | 150101074 | SOUMIK ROY |
| | 150101085 | HUDDEDAR SHASHANK ANIL |
| | 150123007 | BHISHAM BANSAL |
| | 150123018 | KULDEEP YADAV |
| | 150123029 | P RAMADOSS |
| | 150123041 | SYED IMRAN |
| | 150123051 | REMIDI NISHANTH REDDY |
| | 150101009 | ANUP AGARWAL |
| | 150101020 | CHINMOY KACHARI |
| | 150101031 | KUSHAL K S V S |

| Category | Roll No. | Name |
|---|---|---|
| **P2P connectivity**$^\psi$ | 150101041 | NAYANJYOTI KAKATI |
| | 150101053 | ROOPANSH BANSAL |
| | 150101064 | SHAHWAR FATIMA |
| | 150101075 | SOWDABOINA SAI HARSHA VARDHAN |
| | 150101086 | ANKIT KUMAR SINGH |
| | 150123008 | CHIRANJIV GOYAL |
| | 150123019 | MAMILLA RAJASEKHAR |
| | 150123030 | PARIDHI KOTHARI |
| | 150123042 | T VARSHNEYA BHUSHAN |
| | 150123052 | PRITHVI SRIRAM |
| **Hotstar Streaming** | 150101010 | ANURAG RAMTEKE |
| | 150101021 | DESHMUKH UDAYRAJ SHRIKANT |
| | 150101032 | LAKSHMIREDDY SESHA SAI SHOBITH |
| | 150101042 | NEEL MITTAL |
| | 150101054 | SAKET SANJAY AGRAWAL |
| | 150101066 | SHANIGARAM BHARATH CHANDRA |
| | 150101076 | SUDHANSHU RANJAN |
| | 150101087 | SATYA PRAKASH |
| | 150123009 | DAKSH KUMAR |
| | 150123020 | MANAS DARUKA |
| | 150123031 | PUNEET KUMAR |
| | 150123043 | TARUN GENWA |
| | 150123053 | ARKADEEP DAS |
| **Vimeo**$^\ddagger$ | 150101011 | ASHUTOSH KUMAR |
| | 150101022 | DHARMESH CHOURASIYA |
| | 150101033 | MAYANK KUMAR AGRAWAL |
| | 150101043 | NIKUNJ MITTAL |
| | 150101055 | S N V S RATNA KRISHNA PRUDHVI |
| | 150101067 | SHASHANK GAREWAL |
| | 150101077 | SUHAS SHIVSHANKAR KANTEKAR |
| | 150101088 | PRIYANKAR JAIN |
| | 150123010 | DEEPAK KUMAR VERMA |
| | 150123021 | MATCHA NIKHIL |
| | 150123032 | RISHABH AGRAWAL |
| | 150123044 | TURKHADE HRUSHIKESH PRAMOD |
| | 150205018 | MAYANK PATIDAR |
| **Twitch (Live streaming video platform)** | 150101007 | ANKIT PRAJAPATI |
| | 150101016 | BHOLA SHANKAR RATHIA |
| | 150101023 | G SHARATH KUMAR |
| | 150101048 | PRAVEEN JANGID |
| | 150101056 | SAMRAT YADAV |
| | 150101065 | SHAILENDRA KUMAR BRAMHE |
| | 150101081 | VAIBHAV PRATAP SINGH |