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# Protocol Identifier and Classifier

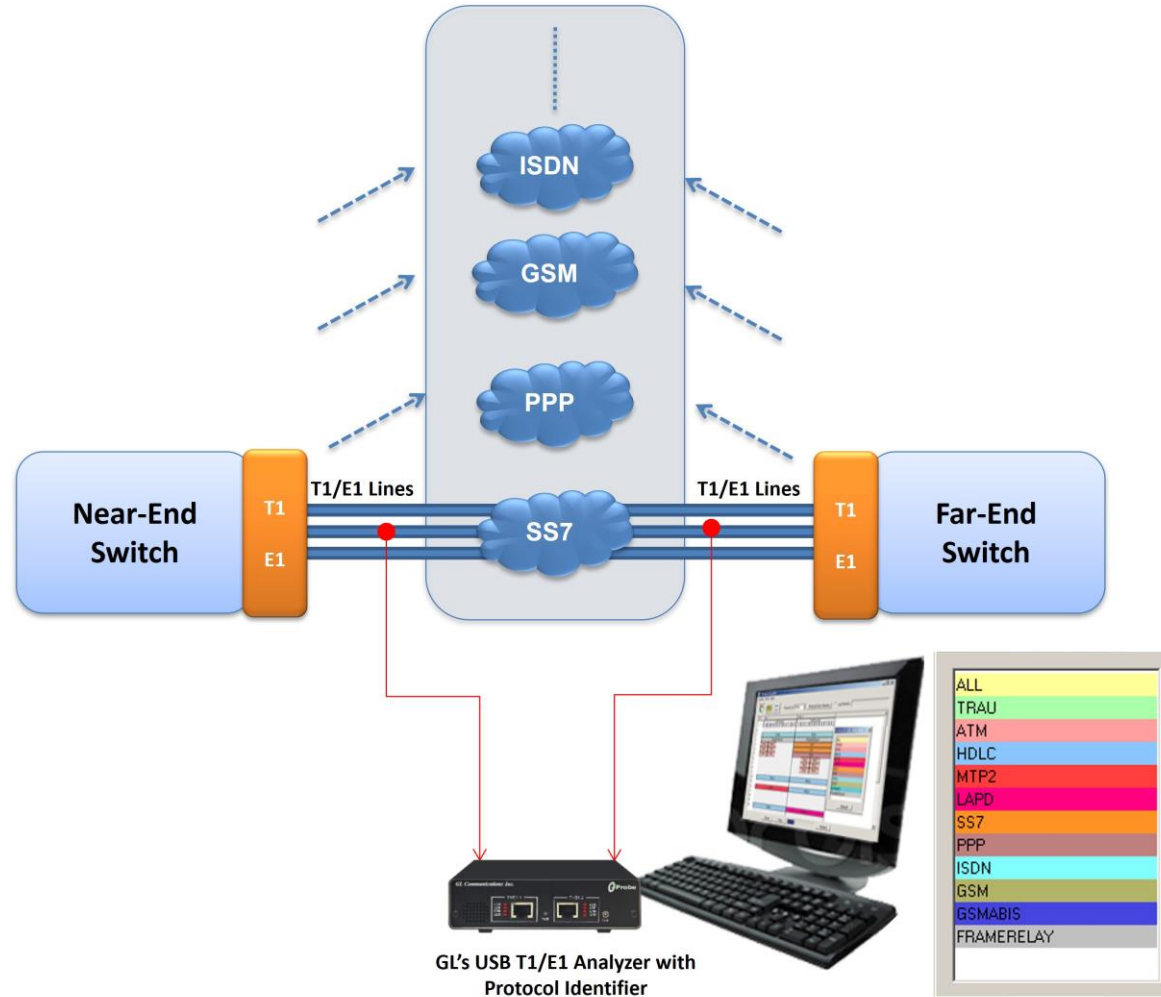
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# Protocol Identifier



- Capable of detecting and classifying various protocols over T1/E1 lines

# Main Features

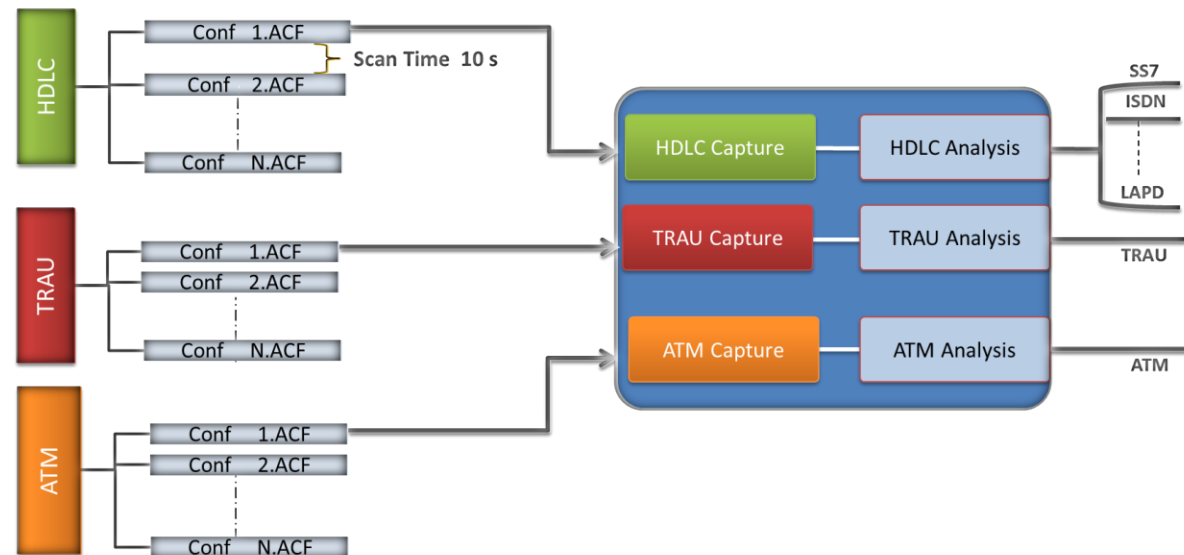
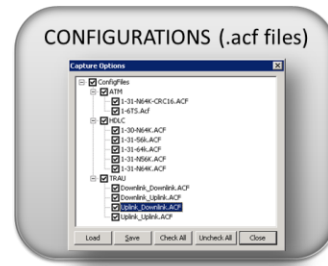
- HDLC based, ATM, and TRAU protocol classification supported
- Classification of HDLC based protocols such as ISDN, SS7, PPP, Frame Relay, and GSM
- Graphical view displays the timeslots and subchannels of the identified protocols
- Statistical view displays the different protocols with the details of port, timeslots and subchannels
- Stream Statistics view shows the count of total number of timeslots, sub-channels, and hyper-channels used by each protocol
- Provides an option to log the protocol detected with device and channel information into a text file
- Ability to Save configurations from HDLC, ATM, and TRAU protocols in Protocol Identifier
- Detects protocols based on pre-defined configurations files for hyper-channels, sub-channels, and data rates
- Supports filtering to display the unique selected protocol
- Supports custom configuration of the colors to easily distinguish protocols

# Applications

- **Snapshot:** Obtain a real-time snapshot of protocol traffic on T1/E1 lines
- **Surveillance:** Identify protocol traffic on all the timeslots/sub channels simultaneously on multiple T1/E1 lines
- **Maintenance:** Helps technicians to quickly identify the content of any T1 or E1
- **Troubleshooting:** Signaling (SS7, ISDN) can be detected on any T1/E1 timeslots; this helps technicians to quickly identify the timeslot of signaling links for further protocol analysis

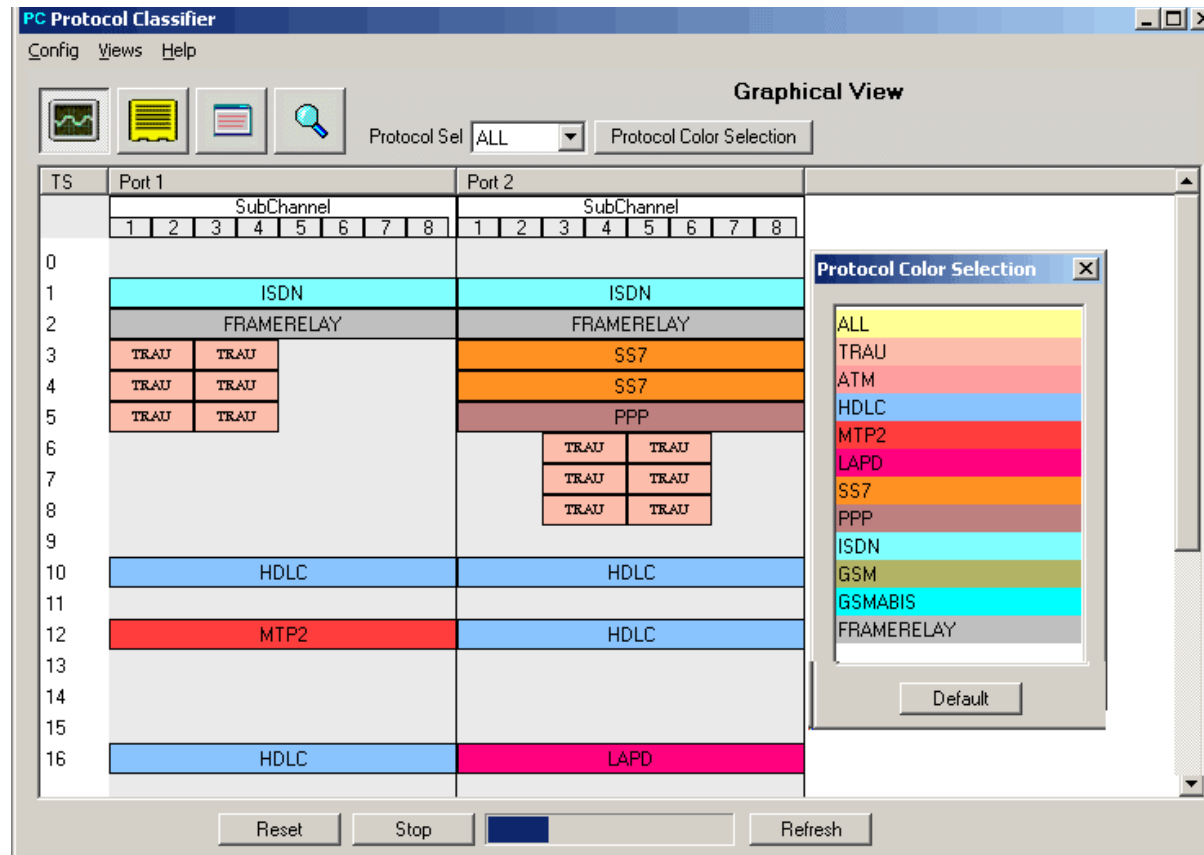
# Working Principle

- Provides ready configurations for selecting various combination of channels, such as single timeslots, full rate hyper channels, multiple hyper-channels of different data rate – 64 kbps, 56 kbps (bits 2-8), 56 kbps(bits 1-7), or sub-channels of 8k to 56k combinations



# Graphical View

- Graphical View identifies the protocols on each timeslot and sub channel of T1/E1 ports being monitored, and indicates using different colors
- The colors can be customized for different protocols as per user requirement



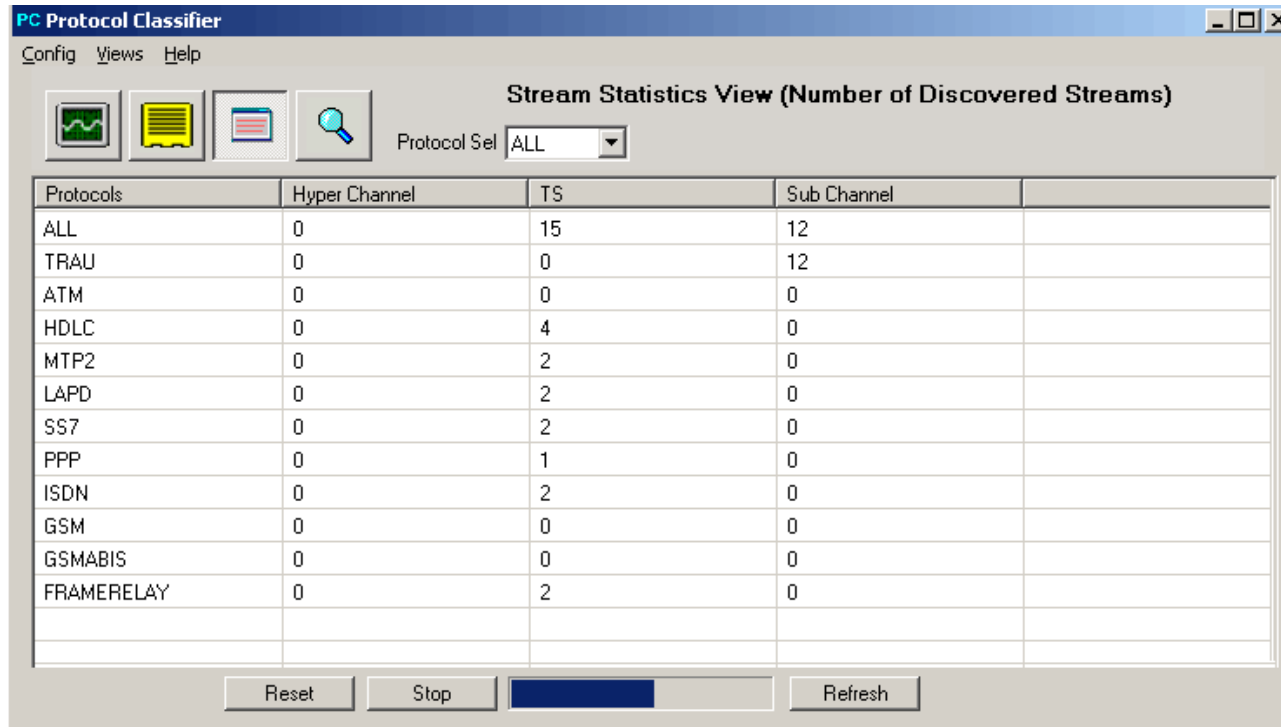
# Statistical View

- This reports the protocols identified on each timeslot and sub channels row-wise
- For example, the screen shows that the TRAU frames are identified on Port 1, timeslots 3 – sub channel 1–2 , timeslot 3 – sub channels 3–4, timeslot 4 – sub channel 1–2, and timeslot 4 – sub channel 3–4

| Device Name                | Protocol Name |
|----------------------------|---------------|
| Timeslot # 1 : 1           | ISDN          |
| Timeslot # 1 : 10          | HDLC          |
| Timeslot # 1 : 2           | FRAMERELAY    |
| Timeslot # 2 : 1           | ISDN          |
| Timeslot # 2 : 10          | HDLC          |
| Timeslot # 2 : 2           | FRAMERELAY    |
| Timeslot # 2 : 3           | SS7           |
| Timeslot # 2 : 4           | SS7           |
| Timeslot # 2 : 5           | PPP           |
| Timeslot # 1 : 12          | MTP2          |
| Timeslot # 2 : 12          | MTP2          |
| Timeslot # 2 : 12          | HDLC          |
| Timeslot # 1 : 16          | LAPD          |
| Timeslot # 2 : 16          | LAPD          |
| Timeslot # 1 : 16          | HDLC          |
| SubChannel # 1 : 3 : 1 - 2 | TRAU          |
| SubChannel # 1 : 3 : 3 - 4 | TRAU          |
| SubChannel # 1 : 4 : 1 - 2 | TRAU          |
| SubChannel # 1 : 4 : 3 - 4 | TRAU          |

# Traffic Flow View (Stream Stats View)

- This displays the stream statistics such as the total count of hyper channels, timeslots, and sub channels used by individual protocols in a tabular format
- It is an indication of the overall bandwidth consumption by the monitored traffic



The screenshot shows the 'PC Protocol Classifier' application window. The title bar reads 'PC Protocol Classifier'. Below the title bar is a menu bar with 'Config', 'Views', and 'Help'. The main area is titled 'Stream Statistics View (Number of Discovered Streams)'. There are four icons: a green waveform, a yellow speech bubble, a blue document, and a magnifying glass. To the right of these icons is a 'Protocol Sel' dropdown menu set to 'ALL'. Below this is a table with the following data:

| Protocols  | Hyper Channel | TS | Sub Channel |
|------------|---------------|----|-------------|
| ALL        | 0             | 15 | 12          |
| TRAU       | 0             | 0  | 12          |
| ATM        | 0             | 0  | 0           |
| HDLC       | 0             | 4  | 0           |
| MTP2       | 0             | 2  | 0           |
| LAPD       | 0             | 2  | 0           |
| SS7        | 0             | 2  | 0           |
| PPP        | 0             | 1  | 0           |
| ISDN       | 0             | 2  | 0           |
| GSM        | 0             | 0  | 0           |
| GSMABIS    | 0             | 0  | 0           |
| FRAMERELAY | 0             | 2  | 0           |

At the bottom of the window are three buttons: 'Reset', 'Stop', and 'Refresh'.



# Stream Scan View

- This displays the scanning of the selected configurations for every 5sec, 10sec, 20sec, or more as specified in the **Scan Time**

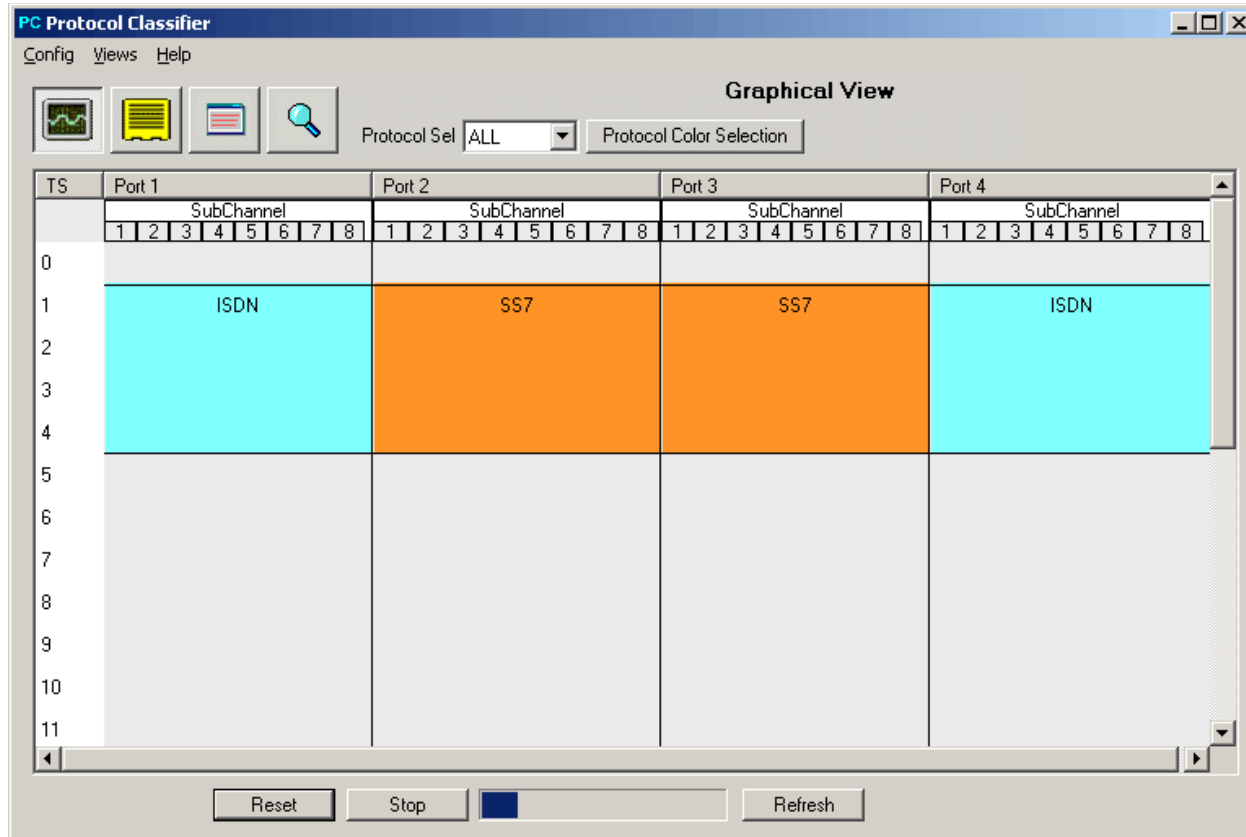
The screenshot shows the 'PC Protocol Classifier' application window in 'Stream Scan View' mode. The interface includes a menu bar (Config, Views, Help), a toolbar with icons for refresh, list, and search, and a 'Scan Time' dropdown menu currently set to '10 sec'. A 'Parallel Detection' button is visible. A table displays the following data:

| Stream Identity  | Configuration Info                                | Time            |
|--|---|-----------------|
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\11x56(Bits 1-7)Kbp... | HDLC on HyperChann                                |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChann                                |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChann                                |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\11x56(Bits 1-7)Kbp... | HDLC on HyperChann                                |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\11x56(Bits 1-7)Kbp... | HDLC on HyperChann                                |                 |
| Uplink-Downlink.ACF  | TRAU on-->Uplink_Downlink                         | 12:38:14.841000 |
| 0-23 TS N64K.ACF   | ATM on HyperChannel-->0-23 TS N64K-CRC16          |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChannel-->672 kbps 10-21 TS with ... |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChannel-->672 kbps 3-14 TS with a... |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChannel-->672 kbps 4-15 TS with a... |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChannel-->672 kbps 2-13 TS with a... |                 |
| Multiple Hyper-Channels\Nx56kbps (bits1-7)\12x56(Bits 1-7)Kbp... | HDLC on HyperChannel-->672 kbps 11-22 TS with ... |                 |
| Uplink-Uplink.ACF  | TRAU on-->Uplink_Uplink                           |                 |

A 'Parallel Detection' dialog box is overlaid on the table, showing 'HDLC Thread Count' set to 5 and 'Ideal Number of Threads for this system' as 1-10. The dialog has an 'OK' button. At the bottom of the main window, there are 'Reset', 'Stop', and 'View Latest' buttons.

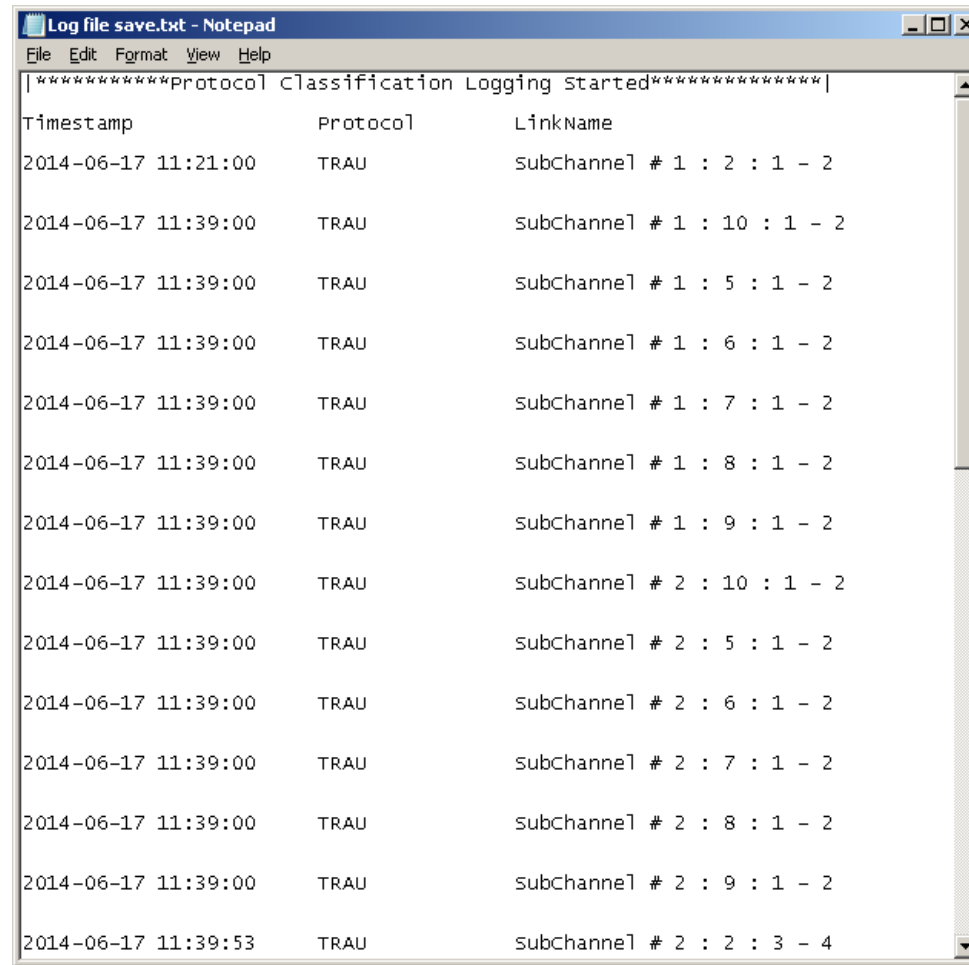
# Multiple Ports and Timeslots

- Protocols Identifier can identify protocols on multiple ports and timeslots, which requires respective GL's protocol analyzers configuration file



# Log Statistics

- The details of the protocols identified, time, timeslots, subchannels, hyper-channels, and device name can be logged into a text file in the desired location for further analysis



```
Log file save.txt - Notepad
File Edit Format View Help
|*****Protocol Classification Logging Started*****|
Timestamp          Protocol          LinkName
2014-06-17 11:21:00 TRAU             subchannel # 1 : 2 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 10 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 5 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 6 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 7 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 8 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 1 : 9 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 10 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 5 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 6 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 7 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 8 : 1 - 2
2014-06-17 11:39:00 TRAU             subchannel # 2 : 9 : 1 - 2
2014-06-17 11:39:53 TRAU             subchannel # 2 : 2 : 3 - 4
```

**Thank you**