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LANIR-TEC Binary to PCAP Application User Manual

LANIR-TEC Binary to PCAP Application used for Automatic HDLC Channels Analysis & Encapsulation Classification of the following types:

LS - Low Speed HDSL (LSL)

HS - High Speed HDSL (HSL)

CH – Cisco HDLC CHDLC

FR – Frame Relay

PF - PPP (Point-to-point protocol)

ET – Ethernet (Detecting types like: IP, ARP, MPLS, IPv6)

Most important LANIR-TEC Binary to PCAP Application features:

- **Load all formats of recorded ODIN Telesystems and / or Pure Binary files.**
- **A lot of files could be saved together by “Save Work” and loaded back by “Load Work”**
- **Up-to 32 separated TS’s could be assembled in one new *.SFS format file**
- **Single TS could be played and saved in Audio form**
- **Two TS’s (as Duplex phone conversation) , could be played in Audio worm as stereo file (Left channel and Right Channel).**
- **Selected up to 32 HDLC Low speed (LSL) TS’s could be stored in one *.SFS format file**
- **Selected HDLC High Speed link could also be stored in one TS *.SFS format file**
- **Selected HDLC links could be stored as PCAP files , ready for use with Wireshark.**

Data files formats which are used in this application:

There are used **Special ODIN Telesystems** and general **Pure Binary** format files

- **Special ODIN Telesystems file formats include information of the recorded TS’s . Such files extensions are *.MFS; *.BFS; *.SFS. There could be more Special files formats.**
- **Pure Binary files : not include any additional informative data , only Binary RAW data**


















Please pay attention and check for right file format when you proceed :



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“File -> Convert pure binary file to BFS format “

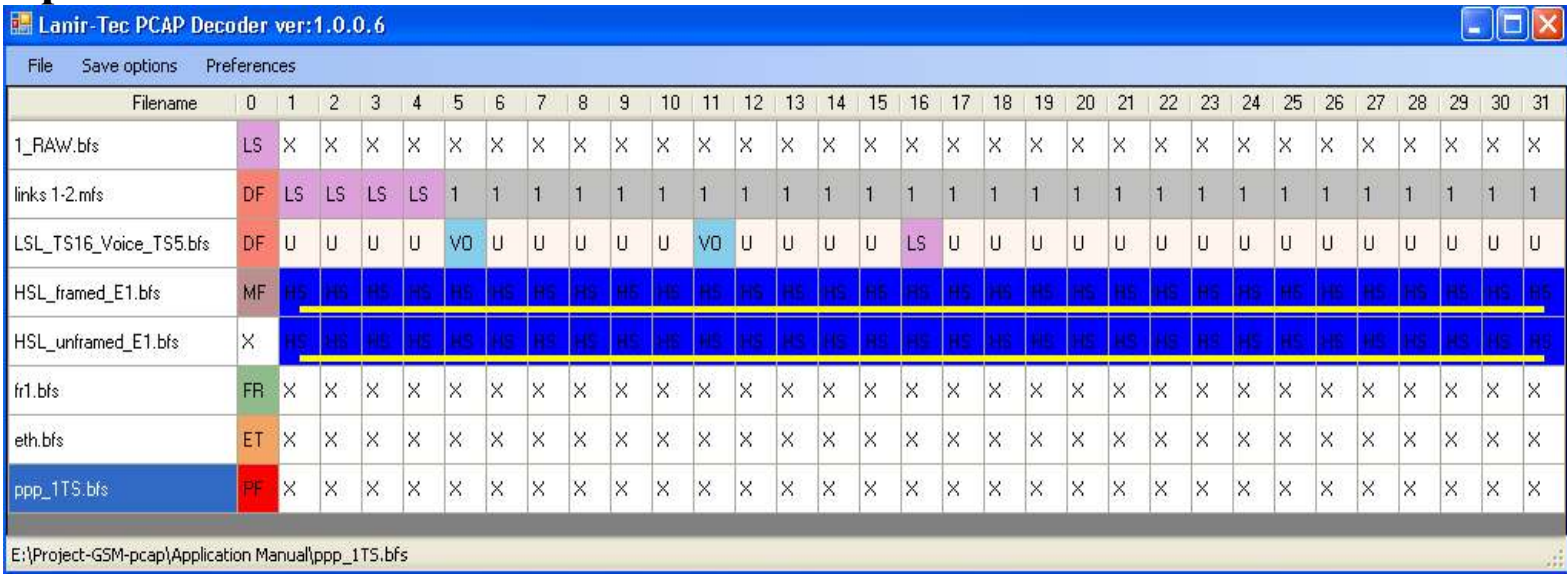
Abbreviations used in this Application

 DF	Double Frame Format	 0	All zero
 MF	Multi Frame format	 X	No File recorded
 ET	Ethernet format	 1	All ones
 CH	Cisco HDLC format	 PI	PCM Idle Format
 FR	Frame relay format	 HS	HDLC Idle Format
 VO	Different random numbers of unknown format, usually voice	 HU	Unknown HDLC format
 FX	Fax present in file		
 PF	PPP encapsulation format		
 LS	MTP2 Low speed HDLC LSL		
 HS	MTP2 High speed HDLC		
 HS	MTP2 High speed HDLC HSL merged format		



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Open recorded files:



To open any ODIN formatted file (mfr, sfs, bfs, etc) : Click on the “Open ODIN ”

To open any non ODIN file (pure binary file): Click on the “File -> Convert selected TS’s to SFS format” , select the file and press “OPEN” , type TS’s quantity recorded in source binary file and press “OK” (with selecting number of TS’s) or “Continue” – for automatically building 32TS’s file.

Load/Save work (*.lwf files)

If you loaded one or more binary files – all of them could be stored into one textual collecting “Work” file.



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To store it – press on Menu “**File- > Save Work**”.

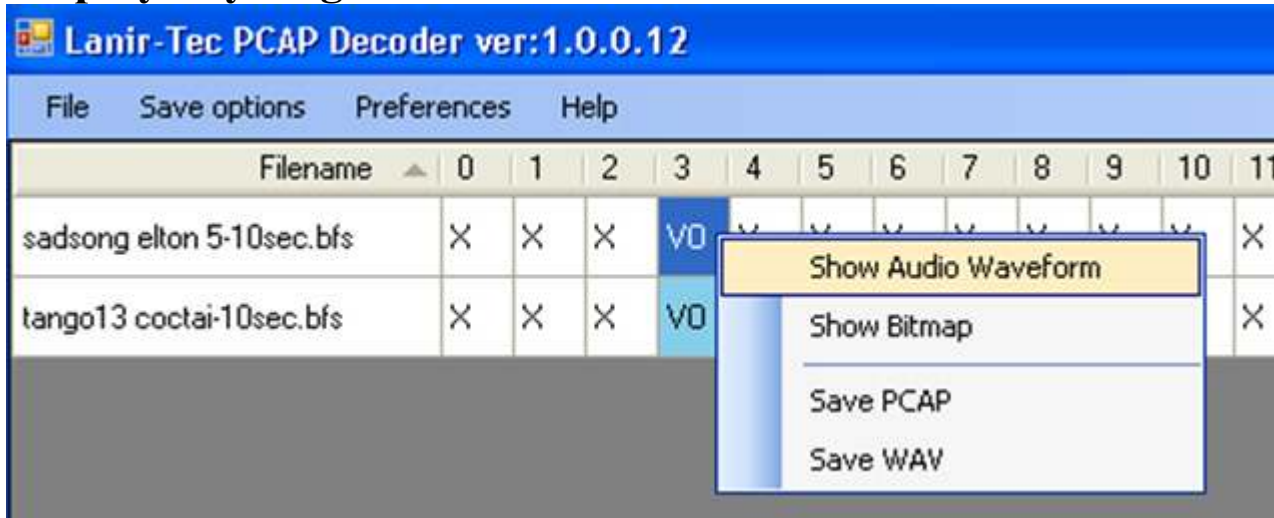
To load the “Work” file back – press on “**File- > Load work**”

“Work” file was stored in *.lwf format. To check/change the “Work” , use regular Notepad program.

Editing was important if folders details changed.

Run Audio Waveforms (Mono and Stereo)

To play any single TS :

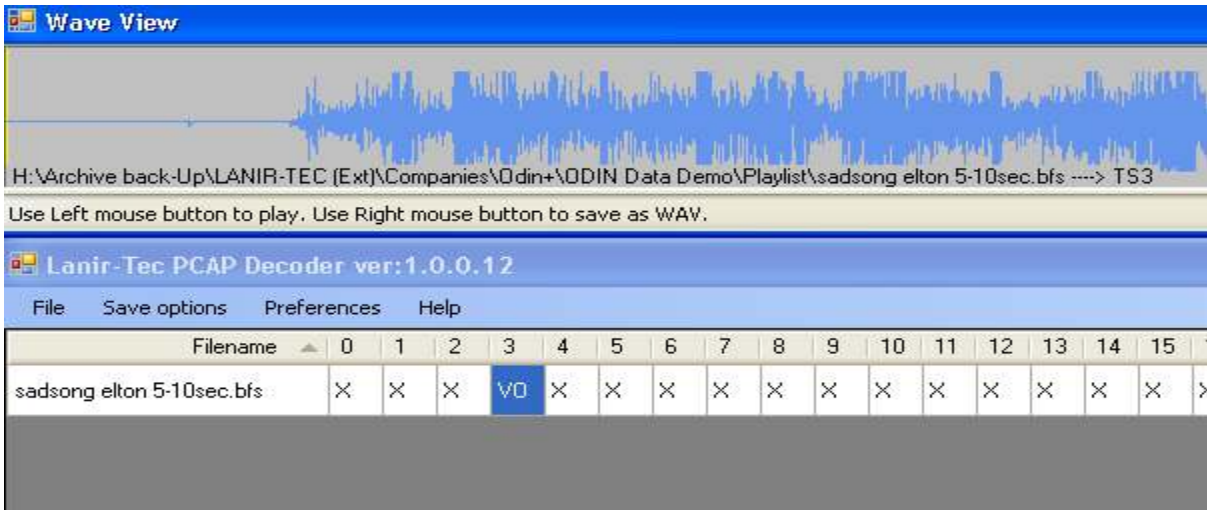


Select TS by pressing Right Mouse Button , Press on Mouse Right button and select the “Show Audio Waveform “

Activate the Sound play -Single TS case:

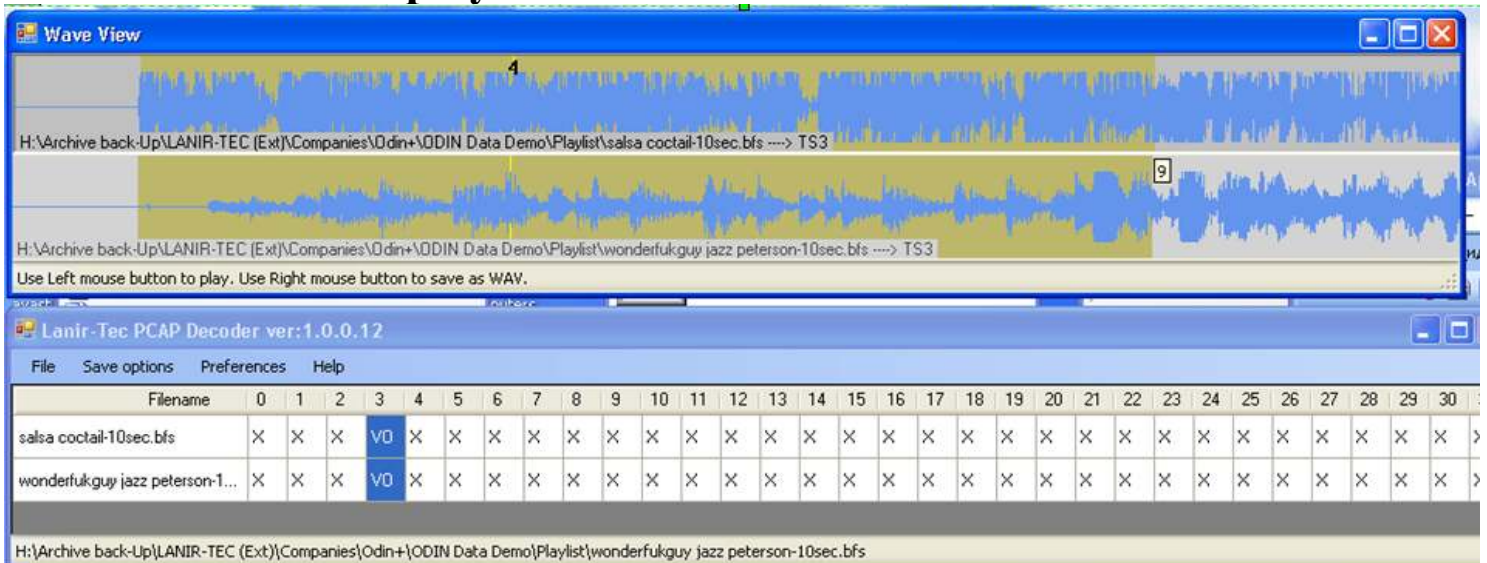


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Select the TS, Press on the Mouse Left button on the Play Start Point and drag it till End Point of the Play. The play sector will be colored in Yellow and will start the Play.

Activate the Sound play on 2xTS's-Stereo case:



Select the 2 x TS's by Holding CNTRL Button , Press on the Mouse Left button on the Play Start Point and drag it till End Point of the Play. The play sector will be colored in Yellow and will start the Play , include Time show.

NOTE : both of selected TS's must be Blue colored with white letters.



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Save part of Wav file :

Wave View

E:\Project-GSM-pcap\Short path sample copies\voipcarrierbin_T4EC-Board#0-Li#3.bfs -> TS4

Use Left mouse button to play. Use Right mouse button to save as WAV.

Lanir-Tec PCAP Decoder ver:1.0.1.6

Filename	0	1	2	3	4	5	6	7	8	9
voipcarrier.mts	DF	PI	PI	PI	PI	PI	PI	PI	PI	PI
voipcarrierbin_T4EC-Board#0...	MF	0	0	0	0	0	0	0	0	0
voipcarrierbin_T4EC-Board#0...		HI	HI	HI	HI	HI	HI	HI	HI	HI
voipcarrierbin_T4EC-Board#0...		VO	PI	VO	PI	VO	PI	VO	PI	VO
voipcarrierbin_T4EC-Board#0...	DF	PI	VO	PI	VO	PI	VO	PI	VO	PI

Save As

Save in: Ver 1016

File name: TS12-from 5.30.wav

Save as type: Wav files (*.wav)

- 1) Select TS
- 2) Press on Mouse Right button and select WAV file area
- 3) Release Mouse Right button and save selected area in WAV file

Play Wav file by using Cool Edit Application (or equivalent)

Play and Save Stereo (2x TS's) Wav file :

Lanir-Tec PCAP Decoder ver:1.0.1.7

Filename	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
voipcarrierbin_T4EC-Board#0-Li...	DF	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	LS	PI	VO	PI	PI	PI	PI	PI	PI	PI	VO	PI	PI	PI	VO	PI	

Save complete

Show Audio Waveform

Show Bitmap

Save WAV

TS18 + TS26.txt - Notepad

Protocol - Stereo WAV file
 Left side from file: E:\Project-GSM-pcap\Short path sample copies\voipcarrierbin_T4EC-Board#0-Li#3.bfs TS18
 Right side from file: E:\Project-GSM-pcap\Short path sample copies\voipcarrierbin_T4EC-Board#0-Li#3.bfs TS26

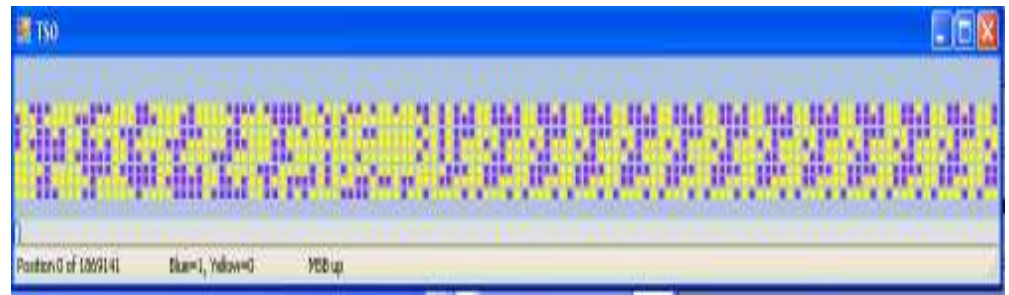
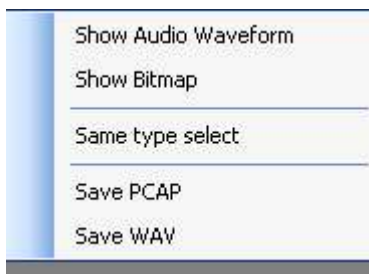


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Play the WAV files by using Cool Edit Application (or equivalent)



Bitmap of single TS:



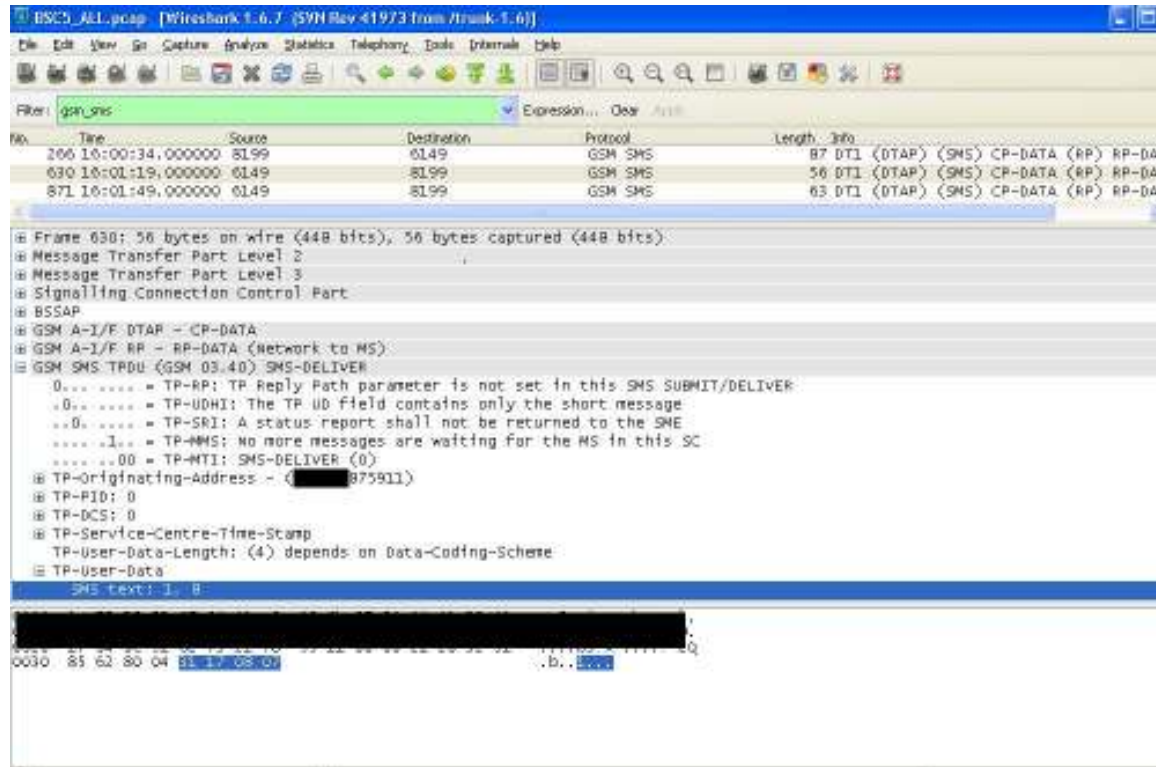
To Show Bitmap of single TS - Select the TS by Left Click, then Right Click and press on "Show Bitmap"

PCAP file creation:



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- Show Audio Waveform
- Show Bitmap
- Same type select
- Save PCAP
- Save WAV

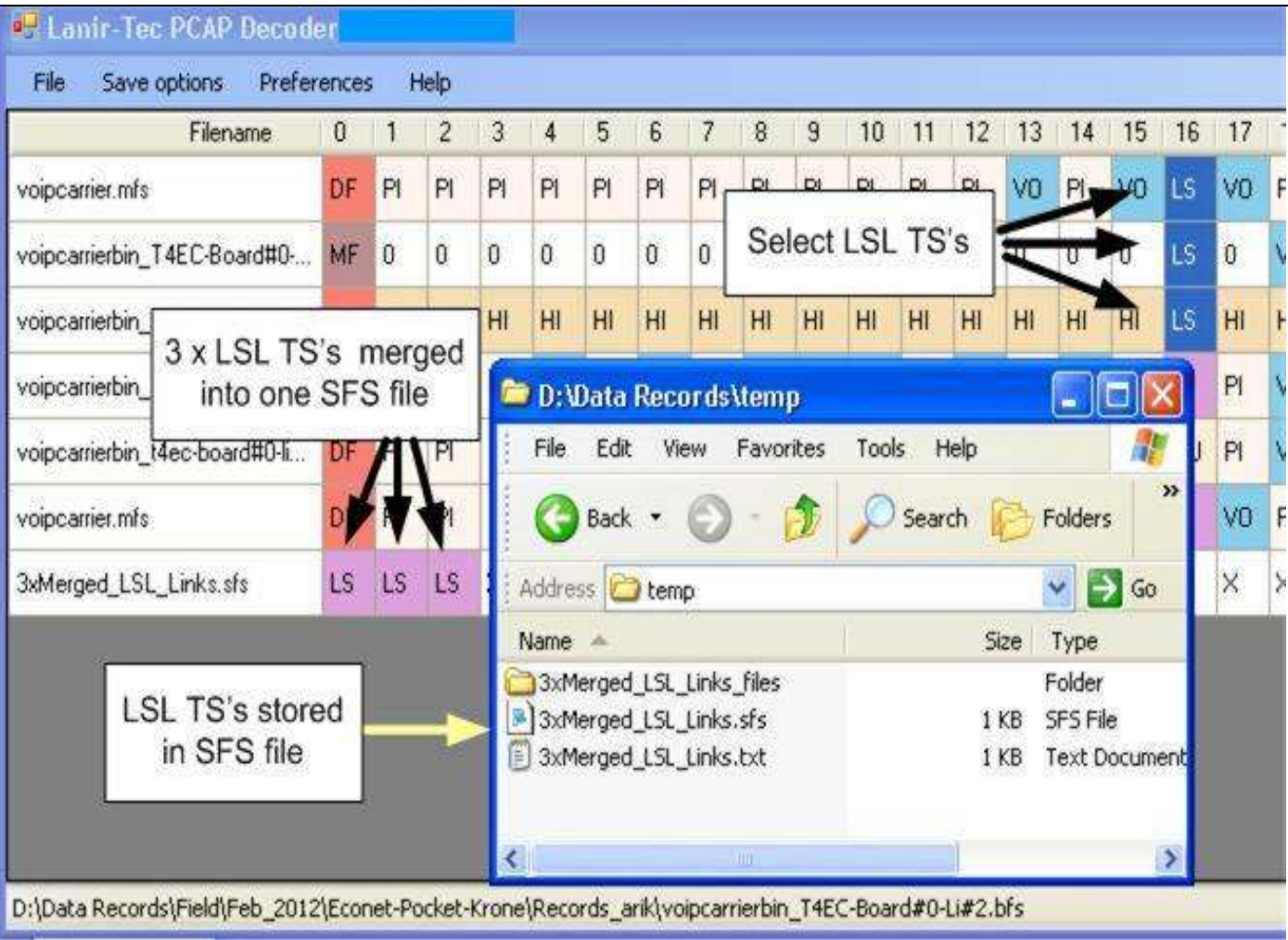


To Create PCAP file - Select the TS by Left Click, then Right Click and press on “Save PCAP”
 Sample of PCAP file when filtered by “gsm_sms”

Merge HDLC links , save in *.SFS and convert into PCAP file

Merge HDLC Low Speed (LSL) link

- Select LSL TS's (Max =32)
- Save them in new *.SFS file : “File -> Convert selected TS's to SFS format
- As result you get 2 files (*.TXT , *.SFS) and one folder with pure Binary data
- Drag *.SFS file into application
- now you can store it as “work “ and make PCAP file



The screenshot shows the Lanir-Tec PCAP Decoder application. The main window displays a table with columns for 'Filename' and indices 0 through 17. The table contains several rows of data, including 'voipcarrier.mfs', 'voipcarrierbin_T4EC-Board#0-...', and '3xMerged_LSL_Links.sfs'. A callout box labeled 'Select LSL TS's' points to the 'LS' entries in the table. Another callout box labeled '3 x LSL TS's merged into one SFS file' points to the '3xMerged_LSL_Links.sfs' row. A third callout box labeled 'LSL TS's stored in SFS file' points to the file explorer window showing the contents of the 'temp' folder, which includes '3xMerged_LSL_Links_files', '3xMerged_LSL_Links.sfs', and '3xMerged_LSL_Links.txt'.

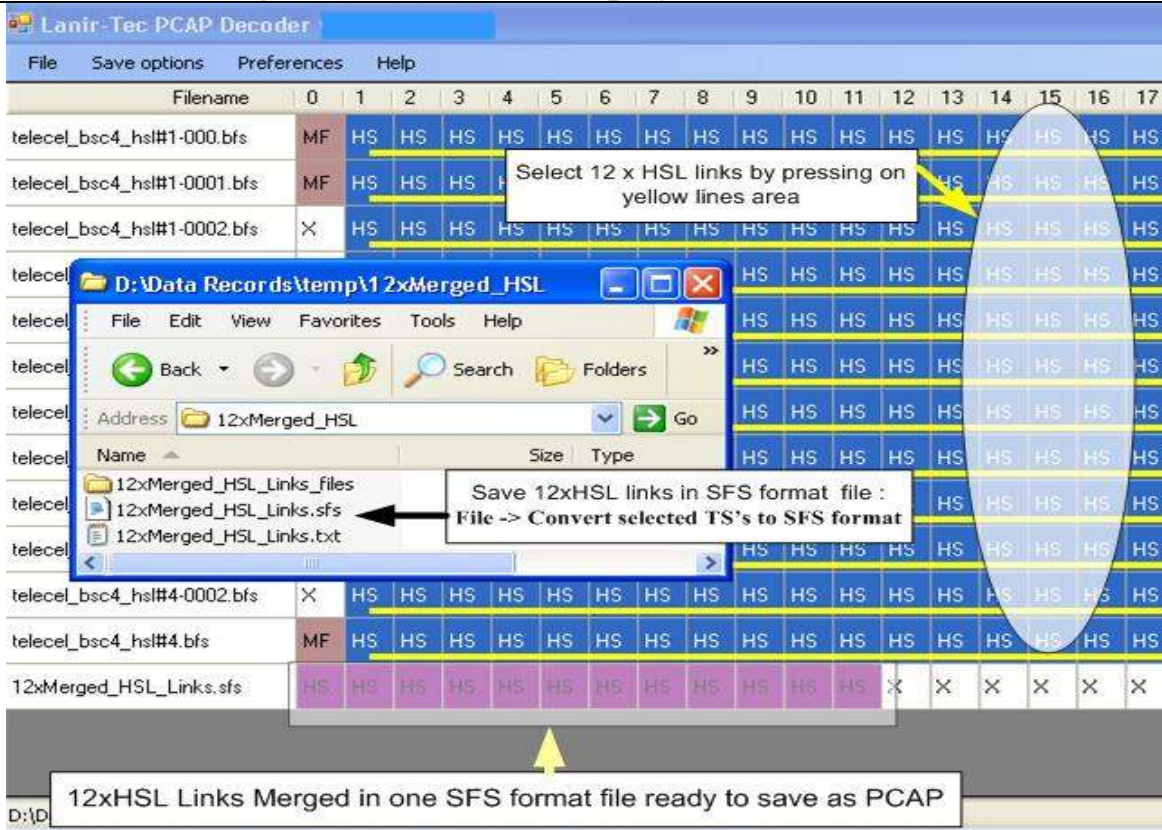
Filename	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
voipcarrier.mfs	DF	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	VO	PI	VO	LS	VO
voipcarrierbin_T4EC-Board#0-...	MF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LS	0
voipcarrierbin				HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	HI	LS	HI
voipcarrierbin																		
voipcarrierbin_t4ec-board#0-li...	DF	PI	PI															
voipcarrier.mfs	DF	PI	PI															
3xMerged_LSL_Links.sfs	LS	LS	LS															

Merge HDLC High Speed (HSL) link

It means - to convert **High Speed Link (HSL)** recorded file which occupy 31 or 32 TS's, into ONE TS (*.SFS -Single Format System file). In this application any HSL link indicated by yellow strip on the bottom of the TS's line. Maximum number of 32 HSL Links could be merged and assembled into single SFS file.

This feature was very useful when working with huge Wireshark PCAP files for search information placed there.

NOTE: HDLC HSL Link, merged into on TS, can be used only for PCAP file generation and can't used as regular *.BIN record to play it. All info about source files history stored in *.txt file



Merge one HSL file (31or 32 Ts's) :

- 1) Left Mouse Click on High Speed Link (TS's side signed by yellow line)
- 2) File -> "Convert Selected TS's to SFS format"
- 3) On the question : " Do you want to merge....." Answer "Yes" and save new (*.SFS) file
- 4) Load new *.SFS file into application.

Merge few HSL files (31Ts's each HSL link) , to one SFS file:



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1) Press on the Control Button + Left Mouse Click on all requested High Speed Links (with TS's side signed by yellow line)

2) Rest of steps will be the same as for previous Merge One file case.

Please see "12xMerged_HSL_Link.sfs" on the Application drawing.

Note: Maximum of 32 High speed Links (31 or 32 Ts each) could be merged into one SFS file

Build PCAP file with Merged HDLC

1) Load *.SFS file with merged HSL or LSL files

2) Press Control + Mouse Left Click on all requested Merged TS's. They will be colored in blue

3) Press Right Mouse Click and ask for "Save PCAP" option.

Note : Source files and path names will be saved together with PCAP file and under the same name as PCAP file.

Merge HSL and LSL

Note: Merged HSL link(s) TS's and LSL TS(s) can't be included in the same PCAP file. Separated PCAP files must be build for HSL and LSL.

1) Please hold on Control Button, Indicate HSL (HS on application) to merge them and LSL (LS on Application) to add them in single *.SFS file.

2) Load *.SFS file . You will detect ONE TS with HSL merged file and 2 TS's with added LSL

3) Continue and build PCAP file for HSL and another one for LSL, as noted before.

All of PCAPS will be joined textual file with information about source file.

Note: For release issues please read **Readme.txt** file supplied with the Application.