T1 E1 Analyzer Call Capture and Analysis

GL Communications Inc.

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Index

- Call Capture and Analysis Application (CCA)
- Multi Call Capture and Analysis Application
- View PCM Files (Adobe Audition / Goldwave)
- Call Data Records (CDR)
- Voice Band Analyzer (VBA)
- Analyzing CDR output using EXCEL®



Multiple Call Capture





T1 E1 Hardware Platforms



tProbe[™] - Portable USB based T1 E1 VF FXO FXS and Serial Datacom Analyzer



Dual T1 E1 Express (PCIe) Board



Quad / Octal T1 E1 PCIe Card

tScan16™ with 16-port T1 E1 Breakout Box





- Run multiple capture instances on different T1/E1 ports from a single GUI
- Ability to capture calls using different Triggering modes ;both signaling (CAS -R1, wink start, MFC-R2), message based (ISDN, SS7) and traffic (voice, fax, modem, tones, digits) activated triggers supported
- Each capture instance is identified by a unique probe name, and can have different trigger options, such as the timeslot selection, output directory, record time, and so on
- Capability of capturing on both directions simultaneously or from a single direction, East or West side
- Supports capturing of various types of traffic including signaling bits, voice-band data, and signaling protocol data (e.g. DTMF of MF digits)
- Different encoding formats supported (u-law, A-law, PCM)
- Provides an option of stamping the captured files sequentially or with date/time
- "Call filtering" feature is used to capture calls with a user-defined called or calling numbers rather than all calls in case of ISDN and SS7 calls



Capture Modes





Manual Capture Mode



- Permits capture manually, irrespective of signaling bits or tone definitions
- File Naming Convention Two different types of file naming conventions are provided based on the capture type for signaling - Normal, and MFC-R2
- CAS Digit Parsing Used for CAS R1 protocol calls to capture called or calling numbers and store in the Call Status
 Record (*.csr) files



Manual Mode Configuration

Call Capture and Analysis



Multiple Call Capture and Analysis

Configure CCA
Card Selection Call Storage
Port Selection West Direction Card #1 East Direction Card #2 TS Selection East
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 A ll
Apply OK Cancel



Manual Call Capture and Analysis

Call Capture and Analysis

Multiple Call Capture - UsbE1 Card #1 and #2			_ 🗆 ×	1	
File Capture Settings					
D:\CapturedFiles\ManualCall1210091146		— 🔁			
Capture File #1			isplay —		
Dec10W01.000		1 🗄	I III		
Bytes Captured: 17024			-		
Capture File #2					
Dec10E01.000		- <u>s</u> t	OP		
Bytes Captured: 17024	Multi Ca	Il Capture for M	lanual - Unti	itled	
Signaling File: Dec1001.000.000	File Ed	lit Trigger Option	ns Process		
	CC No	Capture Name	West(Port)	East(Port)	Tir
	1	CCA1	1	2	
16 17 18 19 20 21 22 23 24 25 26 27 28 29	2	CCA2	1	2	
	3	CCA3	1	2	
	4	CCA4	1	2	
					_

Multiple Call Cap	ture and Analysis
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aptured: 17024	Multi Ca	Ilti Call Capture for Manual - Untitled								미×
a File: Dec1001.000.000	File Ed	dit Trigger Opl	ions Process							
Activitu	CC No	Capture Name	West(Port)	East(Port)	Timeslots	Storage Location	n	Trigger Option	Action	
Activity	1	CCA1	1	2	0-23	C:\Program File	es\GL Communications Inc\Dual Ultra HD T1 Analyze	er Edit	Abort	
02 03 04 05 06 07 08 09 10 11 12 13 18 19 20 21 22 23 24 25 26 27 28 29	2	CCA2	1	2	0-23	C:\Program File	es\GL Communications Inc\Dual Ultra HD T1 Analyze	er Edit	Abort	
	3	CCA3	1	2	0-23	C:\Program File	es\GL Communications Inc\Dual Ultra HD T1 Analyze	er Edit	Abort	
	4	CCA4	1	2	0-23	C:\Program File	es\GL Communications Inc\Dual Ultra HD T1 Analyze	er Edit	Abort	
	TS 1	IS Status		West	: Filename	Bytes Captured(West)	East Filen	ame Bytes Capl	tured(East)	
	TS ⁻	TS Status C:1	Program Files\GI	Wesl . Communicat	: Filename	Bytes Captured(West) 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultr-	ame Bytes Capl a	tured(East) 742224	-
	T5 0 0 0 1 0	TS Status Capturing C:1 Capturing C:1	Program Files\GI Program Files\GI	Wesl Communicat Communicat	: Filename ons In ons In	Bytes Captured(West) 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultr. C:\Program Files\GL Communications Inc\Dual Ultr.	ame Bytes Capl a a	tured(East) 742224 742224	-
	T5 0 0 0 1 0 2 0	IS Status Capturing C:1 Capturing C:1 Capturing C:1	Program Files\GI Program Files\GI Program Files\GI	Wesl Communicat Communicat Communicat	Filename ons In ons In ons In	Bytes Captured(West) 742224 742224 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra	ame Bytes Capl a a a	tured(East) 742224 742224 742224 742224	
	T5 0 0 0 1 0 2 0 3 0	IS Status Capturing C:1 Capturing C:1 Capturing C:1 Capturing C:1	Program Files\G Program Files\G Program Files\G Program Files\G	Wesl Communicat Communicat Communicat Communicat	Filename	Bytes Captured(West) 742224 742224 742224 742224 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra	ame Bytes Capl a a a a a	tured(East) 742224 742224 742224 742224 742224	
	T5 0 0 0 2 0 3 0 4 0	TS Status Capturing C(1) Capturing C(1) Capturing C(1) Capturing C(1) Capturing C(1)	Program Files\G Program Files\G Program Files\G Program Files\G Program Files\G	Wesl Communicat Communicat Communicat Communicat	Filename ons In ons In ons In ons In ons In	Bytes Captured(West) 742224 742224 742224 742224 742224 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra C:\Program Files\GL Communications Inc\Dual Ultra	ame Bytes Capi a a a a a a	tured(East) 742224 742224 742224 742224 742224 742224 742224	
	TS 0 0 0 2 0 3 0 4 0 5 0	IS Status Cit Capturing Cit Capturing Cit Capturing Cit Capturing Cit Capturing Cit Capturing Cit	Program Files\G Program Files\G Program Files\G Program Files\G Program Files\G Program Files\G	Wesl Communicat Communicat Communicat Communicat Communicat	Filename ons In ons In	Bytes Captured(West) 742224 742224 742224 742224 742224 742224 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultr: C:\Program Files\GL Communications Inc\Dual Ultr:	ame Bytes Capl a a a a a a a	tured(East) 742224 742224 742224 742224 742224 742224 742224 742224	
	T5 0 1 2 3 4 5 0 4	TS Status Capturing C:\ Capturing C:\ Capturing C:\ Capturing C:\ Capturing C:\ Capturing C:\	Program Files\GI Program Files\GI Program Files\GI Program Files\GI Program Files\GI Program Files\GI	Wesl Communicat Communicat Communicat Communicat Communicat	Filename	Bytes Captured(West) 742224 742224 742224 742224 742224 742224 742224 742224	East Filen C:\Program Files\GL Communications Inc\Dual Ultr: C:\Program Files\GL Communications Inc\Dual Ultr:	ame Bytes Capl a a a a a a a	tured(East) 742224 742224 742224 742224 742224 742224 742224	



Manual Captured PCM Files





Auto Capture Mode



- Triggers capturing based on signaling, tones, signaling+tones, ISDN messages, SS7 messages, and Traffic activated (voice, busy tone, ring back tone, DTMF, any traffic etc.)
- Record Time limit the duration of the capture to a certain length by specifying the time interval (in seconds)



Signaling Trigger Type



• **Signaling** – This type of triggering requires user-defined start and stop ABCD signaling bits to initiate and terminate capturing of calls on chosen timeslots



Signaling Triggered Capture in CCA (Contd.)

Call Capture Options		
Configuration Timeslot Selection	Call Storage	
Configuration Timeslot Selection Device Selection East Direction Card #1 East Direction Card #2 Capture Mode Manual Capture Auto Scanning	Call Storage	Bits Trigger A - 0 B - 0 C - 0
Capture Ingger Type Signaling C Tone Signaling + Tone Signaling Signaling Signaling Signaling Tone Signaling Sig	Tone Wait (sec) 10	CAS Digit Parsing CAS Digit Parsing Enable - 7 Time Period (sec) Parse Script d."a. CAS R1 DID"ANI
	OK Ca	ncel Apply Help

lultiple Call Capture - UsbE1 Card #1 and #2	
File Capture Settings	
D:\CapturedFiles\Signaling1210091153	
Capture File #1	- TS Display -
Dec10_W0101_2009_1210_115337.pcm	1 🕂
Bytes Captured: 33840	<u> </u>
Capture File #2	
Dec10_E0201_2009_1210_115337.pcm	<u><u>s</u>top</u>
Bytes Captured: 33840	Options
Signaling File:Dec10_01_2009_1210_115337_sbf.csv	Clear ISDN
_ Timeslot Activity	
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	



Signaling Triggered Capture in Multi CCA

Configure CCA			×							
Card Selection CAS Configuration Call Storage										
Signaling Bits Trigger Start Bits 1 0 0 1 A B C D Stop Bits 0 0 0 1 CAS Digit Parsing Parse Script d-*a. Help CAS R1 DID*ANI										
	Multi Ca	Il Capture for	Signaling - Un	titled						
Apply	File Ed	it Trigger Opt	ions Process			1	-		1	1
		Capture Name	West(Port)	East(Port)	Timeslots	Storage	Location		Trigger Option	Action
	1	CCA1	1	2	0-23	C:\F	rogram Files\GL Communications Inc\Univ	ersal T1 Analyze	r Edit	Abort
	TS	TS Status		We	st Filename	Bytes Cap	East Filename	Bytes Cap		Signaling Fil 🔺
	0	Capturing	C:\Program File	es\GL Commu	nications	50976	C:\Program Files\GL Communications	50976	C:\Program Files\GL C	ommunications.
	1	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	2	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	3	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications
	4	Capturing	C:\Program File	es)GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	5	Capturing	C: (Program File	estal Commu	nications	50520	C:(Program Files)GL Communications	50520	C: (Program Files (GL C	ommunications
	7	Capturing	C:(Program File	estal Commu	nications	50520	C:(Program Files)GL Communications	50520	C: (Program Files) GL C	ommunications
	8	Capturing	C:\Program File	estal Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	9	Capturing	C:)Program File	esiGL Commu	nications	50520	C:)Program Files)GL Communications	50520	C:\Program Files\GL C	ommunications.
	10	Capturing	C:\Program File	esiGL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	11	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications
	12	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	13	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	14	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications.
	15	Capturing	C:\Program File	es\GL Commu	nications	50520	C:\Program Files\GL Communications	50520	C:\Program Files\GL C	ommunications. 👻
				1						
	,									



Signaling Trigger





Signaling+Tone Trigger Type



• **Signaling + Tone** - This type of triggering requires a combination of user-defined Start/Stop signaling bits followed by a user-defined mono or dual tone within a specified timeout period



Tone Triggered Capture



• **Tone** - This type of triggering requires user-defined mono or dual tones to initiate and terminate capturing of calls on chosen timeslots



Tone Triggered Capture

Call Capture and Analysis

all Capture Options			XI	
Configuration Timestot Selection	all Storage Parameters	ser-Defined		Configure CCA
Device Selection	tion	EI File Naming Conventiona		Card Selection
Next Direction Count of	abat bulant			-User Defined
West Direction Lard #1		•• Normal		
East Direction Card #2 -	East	C MFC-R2		Label
Capture Mode	Signation	Pite Triagere		a
	Start Trigger	Stop Trigger		
<u>Manual Capture</u>	<u>Start nigger</u>			
Auto Scanning	B . 0	R - 0		
Capture Trigger Tupe	C . 0	0.0		
C Signaling	0.1	0.1		
 Tone 				(5-) ll 1 5
				(Set "Hi H
C ISDN Massage	Tone Wait (sec)	CAS Digit Parsing		Detection Par
C ISDN Message		Enable		Durah Darma
SS7 Message	10	7		Burst Power
C Traffic Activated	, i	Time Period (sec)		Inter-burst
	L	'		Threshold
Limited Capture (sec)		Parse Script		Minimum S/N
, Ennes cabine (ecc)		d·*a. 💡		
		CAS R1 DID"ANI		
	UK Ca	ncel <u>Apply</u> Help		

Multiple Call Capture and Analysis

Configure CCA	×
Card Selection Tone Configuration Call S	corage
User Defined	
Label Lo Freq Hi Freq	Tones
a 1004 0	Insert
	Remove
	Clear
	File
	Load Defs
(Sat "Hi Even" to 0 fey Mana Tanas)	Save Defs
Detection Parameters	Tone Wait(sec)
Burst Power Threshold -27 (dBm)	Static
Inter-burst Length 20 (ms)	
Minimum S/N Ratio 10 (dB)	
Restore Defaults	
I	Apply OK Cancel

- Tones of specified frequency defined mono or dual tones can trigger the capturing of a call CCA useful for fax calls
- Signaling + Tone a combination of user-defined Start/Stop signaling bits followed by a mono or dual tone (userdefined) within a specified timeout period - useful for capturing fax calls



Tone Triggered Capture

Call Capture and Analysis

Multiple Call Capture - UsbE1 Card #1 and #2	
File Capture Settings	
Capture Directory	
D:\CapturedFiles\Tones1210091157	1 🖼
Capture File #1	
Dec10W01.000	1 ÷
Bytes Captured: 44992	
Capture File #2	
Dec10E01.000	<u></u>
Bytes Captured: 44992	Options
Signaling File: Dec1001.000.000	Clear ISDN
Timeslot Activity	
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	

Multiple Call Capture and Analysis

Multi Ca	II Capture for 1	Tone - Untitle	ed								
File Ed	it Trigger Optic	ons Process									
CC No	Capture Name	West(Port)	East(Port)	Timeslots	Storage	2 Location		· ·	Trigger Option	Action	
1	CCA1	1	2	0-10	C:	Program Files/GL Communications Inc/tPro	obe T1 Analyzer		Edit	Abort	
2	CCA2	1	2	11-23	C:	\Program Files\GL Communications Inc\tPr	obe T1 Analyzer		Edit	Abort	
TS	TS Status		We	st Filename	Bytes Cap	East Filename	Bytes Cap			Signaling Fi	
0	Capturing	C:\Program Ei	esiGL Commu	nications	81072	C:\Program Eiles\GL Communications	81072	C:\Pro	gram Eiles' GL Co	mmunications.	Г
1	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
2	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
3	Capturing	C:\Program Fil	les∖GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
4	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
5	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
6	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
7	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
8	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
9	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
10	Capturing	C:\Program Fil	les\GL Commu	nications	81072	C:\Program Files\GL Communications	81072	C:\Pro	gram Files\GL Co	mmunications.	
11	Idle			-	0	-	0			-	
12	Idle			-	0	-	0			-	
13	Idle			-	0	-	0			-	
14	Idle			-	0	-	0			-	
15	Idle			-	0	-	0			-	•
•										•	
CCA	Details Time	eslots Map /									-



Define Tones

ll Capture Opl	tions					
Configuration	Timeslot Selectio	n Paramete	ers User-Define	d Call Storage	e	
Label	Lo Freq	Hi Freq	Tones			
Itest	1004	0	<u>I</u> nsert			
			<u>R</u> emove			
			<u>C</u> lear			
			File			
			<u>L</u> oad Defs			
I (Set ''Hi Fre	ea'' to 0 for Mono	Tonesì	<u>S</u> ave Defs			
(
			OK	Cancel	Apply	Help

 Allows users to define the type of tone(s) that CCA application should detect. The application can detect single and/or dual tones



Parameters

Call Capture Options	×
Configuration Timeslot Selection Call Storage User-Defined Parame	ters
Detection Parameters	
Burst Power Threshold 27 (dBm)	
Inter-burst Length 20 (ms)	
Minimum S/N Ratio 10 (dB)	
AbsoluteTwist Threshold 0 (dB)	
Bestore Defaults	
OK Cancel	Apply Help

 Sets various parameters for the defined tones such as threshold power above which the tone is classified as a burst segment, minimum duration for an inter-burst so that the preceding and following bursts will be treated separately, signal to noise ratio to treat signal and noise differently, and absolute twist threshold values



Tone Trigger







Communications

ISDN Call Triggered Capture (Contd.)



 ISDN Message – In this type, CCA gets triggered when any ISDN calls are placed. Call filtering with user-defined called and calling numbers can be filtered out apart from the normal working of capturing all the calls. During call capture, the following parameters are displayed: ISDN message types, CRV, Time slot, card number, called and calling numbers



ISDN Call Capture and Analysis

Call Capture and Analysis

Call Capture Options		
Configuration Timeslot Selection ISDN Options Call Storage	Configure CCA	×
Data Rate Reversed	Card Selection ISDN Configuration Call Storage	
C 56 kbps C Reversed	Data Rate	
Inverted Inverted Ntable NFAS Inverted Inverted	Image: Solution of the point of the poi	
	Apply OK Cancel	
OK Cancel Apply Help	1	

Multiple Call Capture and Analysis

- NFAS D-Channel enables NFAS feature during ISDN call capturing on the trunk that contains the D-Channel or the signaling
- Filtering capture ISDN messages with the called/calling number that matches the filtering criteria



ISDN Call Capture and Analysis (Contd.)

Call Capture and Analysis

File Capture Settings Capture Directory C.YProgram Files/GI Communications Inc/Usb E1 Analyzer/te Capture File 1: Card #1 - West' Jan25_W0101_0007.pcm Bytes Captured: 0 Capture File 2: Card #2 - 'East' Jan25_E0201_0007.pcm Bytes Captured: 0 Signaling File: Jan25_01_0007_sbf.csv Clear Timeslot Activity 0 ISDN Stats Isdn Message Error Type Card #1 Card #1 Card #2 Underruns 0 0 0 0 0	_ 🗆
Capture Directory C-Apture Files/GI Communications Inc/Usb E1 Analyzer/te Capture File 1: Card #1 - West' Jan25_W0101_0007.pcm Bytes Captured: 0 Capture File 2: Card #2 - 'East' Jan25_E0201_0007.pcm Bytes Captured: 0 Signaling File: Jan25_01_0007.pcm Bytes Captured: 0 Signaling File: Jan25_01_0007_sbf.csv Timeslot Activity 0 ISDN Stats Isdn Message Enror Type Card #1 Card #2 Underruns 0 0 0 Variance 2	
C:\Program Files\GI Communications Inc\Usb E1 Analyzer\te Image: Capture File 1: Card #1 - West' [Jan25_W0101_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007.pcm] Image: Capture File 2: Card #2 - 'East' [Jan25_E0201_0007_sbf.csv] Clear Timeslot Activity Image: Card #1 Card #2 - 'East' ISDN Stats Isdn Message Isdn Message Elapsed Time [Image: Card #1 Card #2 - 'East' Underruns 0 0 0 Frame Errors 0 0 0	
Capture File 1: Card #1 - West' TS C JJan25_W0101_0007.pcm II Bytes Captured: 0 Capture File 2: Card #2 - 'East' S I JJan25_E0201_0007.pcm S I Bytes Captured: 0 Signaling File: Jan25_01_0007_sbf.csv Clear Clear Timeslot Activity II ISDN Stats Isdn Message Isdn Message Elapsed Time CRV Image: Card #1 Card #2 Underruns 0 0 Frame Errors 0 0	
Jan25_W0101_0007.pcm 1 Bytes Captured: 0 Capture File 2: Card #2 - 'East' 5 Jan25_E0201_0007.pcm 5 Bytes Captured: 0 Signaling File: Jan25_01_0007_sbf.csv Timeslot Activity 0 ISDN Stats 1 Isdn Message Elapsed Time CRV TS Card Called Numl Image: Card #1 Card #2 Underruns 0 0 K Frames 2 2 Frame Errors 0 0 D 0)isplay –
Bytes Captured: 0 Capture File 2: Card #2 - 'East' § 1 Jan25_E0201_0007.pcm § 1 Bytes Captured: 0 Signaling File: Jan25_01_0007_sbf.csv Timeslot Activity Clear ISDN Stats 1 Isdn Message Elapsed Time Emor Type Card #1 Card #1 Card #2 Underruns 0 0 0 0 0 0 0	3
Capture File 2: Card #2 - 'East'	
Jan25_E0201_0007.pcm	
Bytes Captured: 0	UP
Signaling File: Jan25_01_0007_sbf.csv Clea Timeslot Activity DI D2 03 04 ISDN Stats Isdn Message Elapsed Time CRV TS Card Called Numl Certain Card #1 Card #2 Underruns 0 0 Uk Frames 2 2 Firame Errors 0 0 Uk Frames 2 0	tions
Timeslot Activity ISDN Stats ISDN Stats Isdn Message Elapsed Time CRV TS Card Called Num Isdn Message Card #1 Card #2 Underruns 0 0 Uk Frame Errors 0 0 Uk Frames 2 2 Frame Errors 0 0 Uk Frames CRV 0 Uderruns 0 0 Uk Frames CRV 0 Uk Frames	rISDN
ISDN Stats Isdn Message Elapsed Time CRV TS Card Called Num Isdn Message Card #1 Card #2 Underruns 0 0 Uk Frames 2 2 Frame Errors 0 0	
Isdn Message Elapsed Time CRV TS Card Called Num	
Isdn Message Elapsed Time CHV TS Card Called Numl Terror Type Card #1 Card #2 Underruns 0 0 Uk Frames 2 2 Frame Errors 0 0	
Error Type Card #1 Card #2 Underruns 0 0 Ok Frames 2 2 Frame Errors 0 0	
Underruns 0 0 0k Frames 2 2 Frame Errors 0 0	
UK Frames 2 2 Frame Errors 0 0	
CRC Errors 0 0	

Multiple Call Capture and Analysis

Multi Call Capture for ISDN Signaling - Untitled											- 🗆 ×	
File Ed	t Trigger Option	is Process										
CC No	Capture Name	West(Port)	East(Port	:) Timeslots	Storage Location				Trigger Option	Action		
1	CCA1	1	2	0-10	C:\Program	C:\Program Files\GL Communications Inc\tProbe T1 Analyzer Edit						
2	CCA2	1	2	11-23	C:\Program	C:\Program Files\GL Communications Inc\tProbe T1 Analyzer						
ISDN Me	ssage	Call Referenc	e (ChannelNumber	Device Number	Called Number	Caling Numbe	er	Cause Value			
SETUP		24	()	2	554000	555000					
SETUP		25	:	1	2	554001	555001					
SETUP		26	2	2	2	554002	555002					
SETUP		27	:	3	2	554003	555003					
SETUP		28		4	2	554004	555004					
SETUP		29	Ę	5	2	554005	555005					
SETUP		30	6	6	2	554006	555006					
CALL_PF	.OC	24			1							
ALERTIN	G	24			1							
CONNEC	Т	24			1						-	
•											▶	
Error Ty	pe				First Ca	ard		Second Card				
Underru	าร				0			0				
Ok Fram	es				167			136				
Frame E	rors				0			0				
CRC Erro	ors				0			0				
\ CCA	Details 🔪 Time:	slots Map	SDN sta	tistics /								



ISDN Call Triggered Analysis





SS7 Call Triggers



 SS7 voice calls are kept in CIC groups. When an SS7 call is detected, an Origination Point Code (OPC), a Destination Point Code (DPC), and CIC # are retrieved. If the comparison holds good capture task is performed, otherwise the call is discarded











- **Call Filtering**: To capture SS7 messages with the called/calling number that matches the filtering definition
- **Signaling Selection**: Two sources of signaling (primary and secondary) are used to detect the incoming calls on the signaling timeslot
- CIC (Circuit Identification Codes) Group: SS7 voice calls are in CIC groups and when a SS7 call is detected, an Origination Point Code (OPC), a Destination Point Code (DPC), and a CIC # is retrieved



Call Capture and Analysis

Call Capture Options	×
Configuration Call Storage Ss7 Options	
Data Rate Ss7 Call Filtering © 64 kbps Call Filtering © 56 kbps No Call Filtering Protocol Selection Originating Number ITU Destination Number CIC Group Configuration Destination Number CIC Group Configuration CIC Start: 100 CIC Quantity: 8 Device Selection: Call +2 Timeslot Start: 11 Add CIC OPC: 1 1+2 10 1+2 10 1+2 10 1+2 10 1+2 10	Signaling Selection Primary Secondary Card # Card # Uplink: Card I Ca
	Cancel <u>Apply</u> Help

Multiple Call Capture and Analysis

Call Capture Options	×
Configuration Call Storage Ss7 Options	
Data Rate Ss7 Call Filtering © 64 kbps © Call Filtering © 56 kbps © No Call Filtering Protocol Selection © driginating Number ITU Itual	Signaling Selection Primary Card # Secondary Card # Uplink: Card 1 Downlink Card 2 Timeslot #: 1 1 1 1 1 1 1 1 1 1
CIC Group Configuration CIC Start: 100 CIC Quantity: 8 Device Selection: Card 1+2 • Timeslot Start: 11 • Add CIC OPC: 1 T1/E1 # Start CIC # of Chan Start Timeslot 1+2 1 10 1 1+2 100 1+2 100	DPC Code DPC: 2 2 2
ОК	Cancel <u>Apply</u> Help



Call Capture and Analysis

1ultiple Call Capture - UsbE1 Card #1 and #2		_									
File Capture Settings											
D:\CapturedFiles\SS7Calls1208091103											
_ Capture File #1											
	_	TS Display	' r								
[Decu8_0101_0001.pcm		11 🗄									
Bytes Captured: 33792		<u> </u>			Multinle	Ca	all Can	ture and Analysis	2		
Capture File #2			_		manipic				•		
Dec08 0201 0001.pcm	Multi Cal	l Capture for 9	557 Signaling	j - Untitled							
,	File Edi	t Trigger Optio	ns Process								
Bytes Captured: 33792	CC No	Capture Name	West(Port)	East(Port)	Timeslots	Stora	age Location		Triç	iger Option	Action
	1	CCA1	1	2	0-23		C:\Program Fi	les\GL Communications Inc\USB T1 Analy:	zer	Edit	Abort
Signaling File:											
Timeslot Activity	TS	TS Status			West File	name	Bytes Can	East Eilename	Bytes Cap	1	
	1+2:0	Capturing	C:\Program Ei	esiGL Comm	unications Inc\USB	T1	99720	C:\Program Eiles\GL Communications	99720		
	1+2:1	Capturing	C:\Program Fi	les\GL Comm	unications Inc\USB	Τ1	99720	C:\Program Files\GL Communications	99720		
TO TI TO TO SO ST SS SO SA SO SI SO SO 20	1+2:2	Capturing	C:\Program Fi	les\GL Comm	unications Inc\USB	Τ1	99720	C:\Program Files\GL Communications	99720		
J	1+2:3	Capturing	C:\Program Fi	les\GL Comm	unications Inc\USB	T1	99720	C:\Program Files\GL Communications	99720		
- SS7 Stats	1+2:4	Capturing	C:\Program Fi	les\GL Comm	unications Inc\USB	T1	99720	C:\Program Files\GL Communications	99720		
	1+2:5	Capturing	C:\Program Fi	es\GL Comm	unications Inc\USB	T1	99720	C:\Program Files\GL Communications	99720		
557 Messages DPL DPL LIL Lard: Timesiot	1+2:6	Capturing	C:\Program Fi	les\GL Comm	unications Inc\USB	T1	99720	C:\Program Files\GL Communications	99720		
Initialize 2 1 1 2:1	1+2:7	Capturing	C:\Program Fi	les\GL Commi	unications Inc\USB	T1	99720	C:\Program Files\GL Communications	99720		
Answer 1 2 1 1:1	1+2:8	Capturing	C:\Program Fi	lesige Commi	unications Incluse	T1	99720	C: (Program Files) GL Communications	99720		
Release 2 1 1 2:1	1+2:9	Capturing	C: (Program Fill	iestal Commi	unications Incluse	T1	99720	C:(Program Files)(GL Communications	99720		
Release Compl 1 2 1 1:1	1+2:10	Capturing	C: (Program Fil	lesi,GL Commi lesi/CL Commi	unications Inc(056 unications Inc(056	T1	99720	C:\Program Files\GL Communications	99720		
Initialize 2 1 1 2:1	1+2:11	Capturing	C:\Program Fil	les (GL Commi les (GL Commi	unications Inc(056 unications Inc(056	T1	99720	C:\Program Files\GL Communications	99720		
Answer 1 2 1 1:1	1+2:12	Capturing	C:\Program Fil	les(GL Commi les)GL Commi	unications Inc(050 unications Inc(USB	T1	99720	CAProgram Files (GL Communications	99720		
Belease Compl 1 2 1 1:1	1+2:14	Capturing	C:\Program Fil	les' GL Comm	unications Inc\USB	T1	99720	ChProgram Files)GL Communications	99720		
Loitializa 2 1 1 2.1	1+2:15	Capturing	C:\Program Fi	esiGL Comm	unications Inc(USB	T1	99720	C:\Program Files\GL Communications	99720		
Annualize Z I I Z.I		= · ·								-	
Answei I 2 I 1:1											
•		Details / Time	eslots Map	SS7 statistic	<u>s</u> /						







Traffic Activated Triggers (XX031)



- Traffic Trigger With this trigger option, it is possible to trigger capturing based on various kinds of traffic such as fax, modem, voice, standard tones, digits, V.22 bis forward channel, V.22 bis reverse channel, V.34 and V.90 uplink, V.29, V.32/V.17 > 2400 bps, V.27 ter @ 4800 bps, V.27 ter @ 2400 bps, Voice, binary V.90 downlink, FSK, DTMF digits, Dial tone, Ringback and Busy tone
- Traffic Algorithm Supported Linear, Quadratic, Hybrid, and Hybrid Filtered



Traffic Triggered Capture

Start Traffic Triggers	- Stop Traffic Triggers
V 22 bis forward channel	Cilence Devendent
V 22 bis reverse channel	Slience Parameters
1 V.34 & V.90 Uplink	
▼ V.29	1117 seconds
▼ V.32 / V.17 > 2400bps	Silence Threshold: -10 dBm
□ V.27 ter @ 4800bps	
🗖 V.27 ter @2400 bps	
└─ Voice -55.00 dBm	Capture Limit
Binary V.90 downlink	
E FSK	
	12 minutes
Dial tone	Traffic Algorithm
Ringback	C Linear
🗖 Busy tone	Hybrid (Recommended)
T Any Traffic dBm	O Hybrid Filtered



Ringback





Dial





DTMF





Busy Tone





V.17_32_Fax





V.29_Fax





Timeslot Selection

Call Capture Optic	ns		×
Configuration Tir	neslot Selection	ISDN Options	Call Storage
Tim	eslots Active for	Capture/Scanni	ing
TS 00 I TS 01 I TS 02 I TS 03 I TS 04 I TS 05 I TS 06 I TS 07 I	TS 08 V TS 09 V TS 10 V TS 11 V TS 12 V TS 13 V TS 14 V TS 15 V	TS 16 V TS 17 V TS 18 V TS 19 V TS 20 V TS 21 V TS 22 V TS 22 V	TS 24 V TS 25 V TS 26 V TS 27 V TS 28 V TS 29 V TS 30 V TS 31 V
Select All	Clea	r All	
OK	Cancel	Apply	Help

- Lists all the timeslots from T0-T31 or T1-T23 corresponding to E1 or T1 analyzers respectively
- · Check the Timeslots that are required to remain active during capturing
- In scanning mode all 24 or 30 channels are scanned for call initiation and recording



Call Storage

Call Capture and Analysis

all Capture Options	
Configuration Timeslot Selection Call Storage	Card Selection CAS Configuration Tone Configuration Call Storage
Capture File Management	Capture File Management
Save Folder C:\Program Files\GI Communications Inc\tProbe E1 Analyzer	Save Folder C:\Program Files\GL Communications Inc\tProbe E1 Analyzer
Subfolders	Subfolders Default Extension
Use Subfolders	Use Subfolders
Subfolder Name Prefix	Subfolder Name FilesCreatedOn C uslaw (ula)
Create New SubFolder Every Hour(s)	Create New SubFolder Every Hour(s) Other
File Creation	
C Date/Time stamp Sequential Capture Probe Name	File Creation Capture Probe Name CCA1
Use 'W' and 'E' as Direction Labels in File Names	
C Use User-Defined Direction Labels in File Names	C Sequential V Use Default Direction(W and E) in filenames
Event Logging	E1 File Naming Convention
Call Summary Records Select Output Format	Call Summary Records Select Output Format Csv 💌
✓ Facility Alarms	Facility Alarms
Supervisory Signals	Supervisory Signals
OK Cancel Apply Help	Apply OK Cancel

Multiple Call Capture and Analysis



Call Capture

Call Storage Features

- Captured file names are named sequentially or with date/timestamp; File names can be prefixed with Probe names
- Allows to save the captured files into a single folder or in several subfolders
- Option to save call summary records, facility alarms, and supervisory signals into either CSV or binary format
- Default extension such as .pcm, ala, .ula ,or any other file extension can be given to the captured files



View PCM File



Sel 0:15.000

46.88 GB free

View 0:15.000

0:15.000

252 K

te

8000 • 16-bit • Mono

Q

Opened in 0.48 seconds -5.2dB @ 0:06.021



MFC-R2 Digit Analysis (Tabular)

TI Analyzer		X
File Config View Monitor IntrusiveTest Special Applications Win	dow Help	
Multiple Call Capture	Clk SB2S On Card #1	
File Capture Settings	2.Signaling bits	X
Call Capture Options		ard #1 💌
Configuration Timeslot Selection ISON Options	TS 0 1111 1	S8 1111 TS 16 1111
	TS1 1111 T	S 9 1111 TS 17 1111 - VE Bude
Timeslots Active for Capture/Scanning	TS 2 1111 T	S 10 1111 TS 18 1111 -Tx (VF In)-
15 00 P 15 08 P 15 16 P 15 24 F	TS 3 1111 T	S 11 1111 TS 19 1111 Gair(d8)
TS 02 🕅 TS 10 🕅 TS 18 🕅 TS 26 🗖	TS 4 1111 T	S 12 1111 TS 20 1111 • L .
TS 03 P TS 11 P TS 19 P TS 27 P	TS5 1111 T	S 13 1111 TS 21 1111 TS
TS 04 14 TS 12 14 TS 20 14 TS 20 14 TS 20 14	TSE IIII T	S 14 1111 TS 22 1111
TS 06 문 TS 14 문 TS 22 문 TS 30 E	157 1111 17	S 15 1111 TS 23 1111
TS 07 14 TS 15 14 TS 23 14 TS 31 L	No Strengthene Dates	Signaling Bits
C\PROGRA~1\GLCOMM~1\DUALPC~2\R2ANA.EXE		-Rx(VFOut)
I mente de charte des 1.0	COMPACT CL Communications	
Continued (1): disconnection (ADDATA	Cold Supervise	
Files: JAN005E01.006	Digit Sequence:	15 9 1111 15 17 1111
JAH05501_006 Call	Errorst 1111	
PCA File Date: 01/05/1997 12:03:12	11111 1111	IS 11 1111 TS 19 1111
Ney3 - CHext Pile/Same Day3 Ney3 - CHext Day3	Keyd - (Previous Day)	/S 12 1111 TS 20 1111
Key5 = (Change Fineslot) Key7 = (Directory Listing)	Key6 = (Enter File Name) Key8 = (Useu)	IS 13 1111 TS 21 1111 54000 1
Key9 - (Scroll or save)	Xey8 = (Change directory)	IS 14 1111 TS 22 1111
Tine Enhed E PON U PON 9324 8	V abcd Connents silence Cessation 1111	IS 15 1111 TS 23 1111 Deptiment TS:
- 19116 15 B 19148 8	tone(s) silence Cessation	Start Stop
20064 15 B 20188 0	tone(s) silence Cessation	[0 글 [23]]
37791		
Ready		#1 T1 In Sync



Call Capture and Analysis Output



CCA CSV Output Files



- CCA captures bidirectional channel data and records it into PCM signal files
- · Records signaling and alarm events, as well as producing a summary record for each call
- CCA logs the capture events in CSV or binary files and feed these results into Call Data Records



Call Capture and Analysis application with Voice Band Analyzer (VBA) and Call Data Records (CDR)



Call Data Records





Voice Band Analyzer

2			NRT Voiceb	and Anal	yzer - VB	A Probe	1			- 🗆 🗙
Profiles Logging	Help									
	Input	File	Directory	Start		Elapsed	ASL	AF	RMS	
Speech Level	E1 W1	S1L.ala S1R.ala	C:\Program Fil C:\Program Fil	06/12/200	7 15:19:36 7 12:22:04	200.000	-20.59 -22.36	52.897 44.043	-23.36 -25.92	PUN
Line Echo										
Traffic Classifier										
FaxScan										<u>S</u> etup
Tone Decoder	-									
Right-Click to Configure Each Module										
										View Results
More Modules	<								>	Clear <u>D</u> isplay
Access Point #1 A-Law E1 File C:\Program Files (x86)\GL Communications Inc\Voiceband Analyzer W1 File C:\Program Files (x86)\GL Communications Inc\Voiceband Analyzer W1 File C:\Program Files (x86)\GL Communications Inc\Voiceband Analyzer										
Ready Manual	Log: d	isabled	Results: S1_vbs.c	sv / S1_vbe.	CSV				25-02-20	15 11:07



CSV Output of VBA

Call Event (*_vbe.csv)

	0427_vbe - Micro	osoft Excel		_ = X							
Home Insert Page Layout Formulas Data Review View	Developer			🕜 _ = X							
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K23 • fx				×							
A B C		D	E F G	H I		Call S	Sumn	nary	(*_vb	S.CSV	1)
1 Input Label File	Sro.	Dir	Modulo Evont Start I		1						÷
2 W1 Washington 554000 555000 Nov16 Washington0100 1 2011 1116 15	9B	Tracent	Dana Lavavit - Eastruitas	SA05052011_114447	_VDS.CSV - M	Developer				(0
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5 W1 Washington 554000 555000 Nov16 Washington0100 1 2011 1116 15	Paste 🧹	BIU		···· ···· ···· ···· ·················		Cell Styles	-	For	mat • 📿	Sort & Fii Filter ▼ Se	nd alec
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10 H 4 h h EE4000 EEE000 Nov16 00 1 2011 1	3 W1	S1R.ala	C:\Program Files\Gl Communi	5/4/2011 17:24	10	61.34411	-28.3206	-62.0005	752	-720	
Perty 9	4 50							20 1411	2240	-2368	
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CDR Highlights

- CDR compiles the output of CCA (Call Capture and Analysis) application and (optionally) VBA (Voice Band Analyzer) application and provides comprehensive information on every call occurring on T1 and E1 lines, including:-
 - > Complete signaling information for each direction for CAS, ISDN, SS7, SIP
 - All alarms and errors occurring during the call including BPV, Frame Errors, CRC errors, LOS, and more
 - Detailed voice band event information occurring during the call including dual tones (DTMF, MF, MFC-R2), fax tones, modem signals, and more
 - Detailed analysis of the voice band call including noise level, speech level, speech activity factor, echo measurements, and more



Working Principle

- CDR captures the events until manually stopped by the user
- CDR Classifies the captured events from CCA into Call side record (CSR), Channel supervision (CAS, ISDN, etc.), and Facility alarms results
- VBA processes the signal files recorded by CCA and provides voice band measurements of the captured signals, including active speech levels, noise level, percent time active, and DC offset
- CDR Classifies the captured events from VBA into In-band events (digits, echo, etc.) results and overall traffic signal measurements
- Can be configured to output its results to ASCII files or direct CSV file for loading into a database or spreadsheet



Call Data Records

PNRT Call Records

Probe ID	Call ID	Orig	Calling	Called	Start	Released	Duration	Rel Code	CRV	Data Rate		
	120125172126-4	East(#2:4)	555003	554003	01/25/2012 17:21:38	01/25/2012 17:23:21	00:01:43	CONN_ACK	94	64k		
	120125172609-4	East(#2:4)	555003	554003	01/25/2012 17:26:19	01/25/2012 17:26:34	00:00:15	REL_CO	4	64k		
	120125172126-3	East(#2:3)	555002	554002	01/25/2012 17:21:38	01/25/2012 17:23:21	00:01:43	CONN_ACK	93	64k		
	120125172609-3	East(#2:3)	555002	554002	01/25/2012 17:26:19	01/25/2012 17:26:34	00:00:15	REL_CO	3	64k		
	120125172126-2	East(#2:2)	555001	554001	01/25/2012 17:21:38	01/25/2012 17:23:21	00:01:43	CONN_ACK	92	64k		
	120125172609-2	East(#2:2)	555001	554001	01/25/2012 17:26:19	01/25/2012 17:26:34	00:00:15	REL_CO	2	64k		
	120125172126-1	East(#2:1)	555000	554000	01/25/2012 17:21:38	01/25/2012 17:23:21	00:01:43	CONN_ACK	91	64k		
	120125172609-1	East(#2:1)	555000	554000	01/25/2012 17:26:19	01/25/2012 17:26:34	00:00:15	REL_CO	1	64k		
•												
Config	Configure Clear Display Enable Logging Run											
Running	Running ISDN Scanning directories 1/25/2012 5:28 PM											



Output Formats of CDR

- CDR can be configured to output its results to Text (ASCII) or Comma-Separated Values ("CSV") files
- ASCII Text A single Call Detail Report text file is produced, which contains summary of calls, individual call events, and in-band summary
- CSV Different sections of the Call Detail Report are segregated into CSV files
 - Call Summary gives an overall summary of the call, including the Probe ID, CALL ID, TimeSlot, Call Ref Value, Protocol, Data Rate, Release Code and so on
 - Call Side Information This section gives Telephone number, Port and Timeslot number, Mid call digits, and Capture file name
 - Call Events gives an event-by-event account of the call. Events include channel supervision events, sporadic echo, alarms, ISDN calls, and various traffic

> In-band Summary – display depends on the Display Fields configurations for each algorithm in the VBA



Call Summary Report (ASCII Output Format)

ISDN Calls

ISDN1115111533_	summar	y.txt - I	otepad								
<u>File E</u> dit F <u>o</u> rmat <u>V</u> ie	w <u>H</u> elp										
ISDN CALL LIST RE	PORT										
			Time	Time	•						
Call ID	Chan 	CRV	Calling 	# Called # 	Seized	Released	Duration	Direction	Mid-Call	l Digits Re 	lease Code
111115153238-1 111115153238-2	6 1	1 1	555006 555001	5 554006 1 554001	15:32:42 15:36:10	15:32:52 15:36:39	00:00:10 00:00:29	New York Washington	-/- -/-	RE RE	EL_COMPLETE
111115153238-3	0	2	55500	📑 CA51116111116_su	ımmar y.txt - Note	pad	-				
	С	AS	Calls	Call LL LIST REPL CAS CALL LIST REPL 	Deep DRT Time Chan Calling 19 301424 21 301924 3 301924 4 301924 5 301924 6 301924 7 301924 8 301924 10 301924 11 301624 12 301624 13 301624 14 301624 15 301624 16 301624 14 301624 15 301624 16 301624 15 301624 16 301624 16 301624 16 301624 16 301624	Time # Called 3 2219 3012244 2221 3016244 2233 3016244 2233 3016244 2233 3016244 2235 3016244 2236 3016244 2236 3016244 2238 3017244 2288 3017244 2289 3017244 2213 3019244 2214 3019244 2215 3019244 2216 3019244 2216 3019244 2217 301924 2217 3019244 2217 301924 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 301924 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 3019244 2217 301924 2217 3019	Seized 219 11:15:25 220 11:15:25 233 11:15:24 234 11:15:24 235 11:15:24 236 11:15:24 237 11:15:24 238 11:15:24 239 11:15:24 239 11:15:24 211 11:15:24 212 11:15:24 213 11:15:24 214 11:15:24 215 11:15:24 216 11:15:24 217 11:15:24	Released Durati	on Direction 41 New York 42 New York 42 New York 43 New York 42 New York 43 New York 43 New York 44 New York 45 New York 46 New York 47 New York 48 New York	Mid-Call Digits -/- -/- -/- -/- -/- -/- -/- -/	Release Code Release Code Normal No

• Each call occupies one line of the report with Channel, CRV, Called Number, Calling Number, Time (Seize/Release information), Call Duration, Call Direction



Call Detail (ASCII Output Format)

- Call Summary
- Call Events
 - > supervisory messages
 - ➤ digit detection
- In-band Summary
 - ➤ signal level
 - ➤ activity factor
 - ➢ RMS power level
 - ➤ noise level
 - ➤ voice file names

ISDN1115111533_de	etail.txt - Notepad		_ 🗆 🗡
Eile Edit Format View	Help		
Ele Edk Fgrmat Yew Probe ID: ATTCARDI Call ID: 111151523 TimeSlot: 0 Protocol: ISDN Data Rate: 64K Start Time: 11/12 Release Time: 11/12 Caller #: 555000 Called #: 555000 Called #: 555000 Called #: 555000 Called #: 60de: REL Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Analyzer/ATT/devi Archive Folder: C:\1 CALL SIDE INFORMA	Eeb 338-3 2011 15:37:20 \$/2011 15:39:14 \$2011 15:39:14 \$500rk (#2) #20 Called and Callin Compare The style of	II Duration with ized & Release time ng #s unications Inc\tProbe T1 2\ les\voicefiles\device1capture1115111532\ New York 555000	-
#Port:Timeslot: #1 Mid-Call Digits: 12 Capt File Name: 55 554000_555000_No	1:0 2345678 54000_555000_Nov15_ v15_New York0200_2_	#2:0 	
CALL EVENTS	Cin	T Devukies	
Last Time of Day Event	Last Supv Direction	y Call p Event Duration Status	
$\begin{array}{c} 15:37:20,000 & 0.00\\ 15:37:20,125 & 0.12\\ 15:37:22,719 & 0.12\\ 15:37:22,719 & 0.12\\ 15:38:32,040 & 69,32\\ 15:38:32,040 & 69,32\\ 15:38:32,040 & 69,32\\ 15:38:32,040 & 69,32\\ 15:38:32,040 & 69,32\\ 15:38:33,280 & 0.19\\ 15:38:33,280 & 0.19\\ 15:38:33,280 & 0.29\\ 15:39:30,340 & 0.20\\ 15:39:30,168 & 32,75\\ 15:39:39:06,219 & 0.03\\ 15:39:06,219 & 0.03\\ 15:39:07,688 & 0.73\\ 15:39:08,485 & 0.78\\$	0 0.000 New York 5 0.125 Washingtor 5 0.125 Washingtor 1 0.125 Washingtor 1 Washingtor 1 Washingtor 4 Washingtor 4 Washingtor 1 Washingtor 1 0.301 Washingtor 1 0.301 Washingtor 0 0.000 Washingtor 4 0.734 Washingtor 1 0.734 Washingtor 1 0.741 Washingtor	s SETUP(on) s ALEERITAG(1) s CONNECT(25) S CONNE	r all
IN-BAND SUMMARY Value Was	shington	New York	
Isput Wa Start Wa Start 113 ASL -10 AF 30.6 RMS -15 Noise -37. % Voice 31.7 % Digits 1.61 % Quiet 0.60 % Idle 66.5	shington (15/2011 15:37:20 ;214 ;701504 108584 ;929049 269003 797235 2903 10000 899862	E1 New York 11/15/2011 15:37:20 13.214 - 0.000000 - 100.000000 - 100.000000 - 100.000000 - 0000000 0.000000 0.000000 0.000000 0.000000	



Call Events

 Call Events displays an event-by-event account of the call. Events include channel supervision events, sporadic echo, alarms

- 🗆 × ISDN1115111533_detail.txt - Notepad Eile Edit Format View Help Probe ID: ATTCARD1 Call ID: 111115153238-3 TimeSlot: 0 Call Ref Value: 2 Protocol: ISDN Data Rate: 64K Start Time: 11/15/2011 15:37:20 Release Time: 11/15/2011 15:39:14 Call Duration with Seized & Release time Call Duration: 00:01:54 Originating side: New York (#2) Terminating side: (#2) Caller #: 555000 Called and Calling #s Release Code: REL_COMPLETE Source Folder: C:\Program Files\GL Communications Inc\tProbe T1 Analyzer\ATT\device1capture1115111532\ Archive Folder: C:\Inetpub\ftproot\TestFiles\voicefiles\device1capture1115111532\ CALL SIDE INFORMATION Value Washington New York Telephone #: 554000 555000 #Port:Timeslot: #2:0 #1:0 Mid-Call Digits: 12345678 Capt File Name: 554000_555000_Nov15_Washington0100_2_2011_1115_153720.pcm 554000_555000_Nov15_New York0200_2_2011_1115_153720.pcm CALL EVENTS Since Since т Resulting Last Last Call Time of Day Event Supv Direction p Event Duration Status 15:37:20.000 0.000 0.000 New York Sr SETUP(on) 15:37:20.125 0.125 0.125 Washington S ALERTING(1) Summary of Signaling and Washington 5 CONNECT(255) 15:37:22.594 2.469 2.469 duration of each signaling 15:37:22.719 0.125 0.125 S CONN_ACK(15) New York 15:38:32.040 69.321 Washington V/DTMF-1 0.088 15:38:32.231 0.191 Washington V DTMF-2 0.101 15:38:32.435 0.204 Washington V DTMF-3 0.101 15:38:32.639 0.204 Washington V DTMF-4 Washington V DTMF-5 Midcall Digits 0.088 15:38:32.830 0.191 0.101 15:38:33.034 0.204 Washington V DTMF-6 0.101 15:38:33.238 0.204 Washington V DTMF-7 0.088 Washington V DTMF-8 15:38:33.429 0.191 0.101 15:39:06.188 32.759 103.469 Washington A (OOF Error(8) 15:39:06.219 0.031 0.031 Washington A Line Sync Loss BPV, Line Sync Loss, Carrier 15:39:06.219 0.000 0.000 Washington A Frame Error(on Loss, Frame Error, and other 15:39:06.954 0.735 0.735 Washington A Frame Error(of 15:39:07.688 0.734 0.734 Washington A Bipolar Violat errors inserted during the call 15:39:07.704 0.016 0.016 Washington A Bipolar Violat 15:39:08.485 0.781 0.781 Washington A Line Sync Loss IN-BAND SUMMARY ¥alue Washington New York Probe Input W1 E1 Lahel Washington New York 11/15/2011 15:37:20 11/15/2011 15:37:20 Start 113.214 Elapsed 113.214 -10.701504 ASL -100.000000 AF 30.008584 0 000000 Active Speech & Noise Level -100.000000 RMS -15.929049Noise -37.269003 -100.000000% Voice 31.797235 0.000000 % Digits 1.612903 0.000000 % Ouiet 0.000000 0.000000 % Idle 66.589862 100.000000



In-Band Statistics

- In-band summary displays in-band summary details dependant on the fields chosen during VBA configuration
- In the example, various Active Speech Level measurements as well as traffic classification estimates are displayed

	533_detail.txt - No	tepad		
Eile Edit Format	⊻iew <u>H</u> elp			
			== Call Summary =============================	
Probe ID: ATTO	CARD1			
Call ID: 11111: Time Clete 0	3153238-3			
Timeslot: U				
Call Ref Value:	2			
Protocol: ISDN				
Data Rate: 64K				
Start Time: 11	/15/2011 15:37:	20 Call	I Duration with	
Release Time:	11/15/2011 15:	39:14 Coi-	red & Delegase time	
Call Duration:	JU:U1:54		Zeu & Reiease unie	
Uriginating sid	e: New York (#2)		
lerminating si	de: (#2)			
Caller #: 5550	Called a	and Callin	a #s	
Called #: 5540	UU J		J	
Release Lode:	REL_COMPLETE			
Source Folder:	C:\Program File	s \GL Commu	unications Inc\tProbe 11	
Analyzer\All	devicelcapture	1115111532	\	
Archive Folder	: C:\Inetpub\ftp	proot\lestFile	es\voicefiles\device1capture1115111532\	
CALL STDE INF	OPMATION			
Value	Washington		New York	
Telephone #:	554000		555000	
#Port:Timeslo	: #1:0	#	#2:0	
Mid-Call Digits	12345678			
Capt File Name	554000_555 554000_555	000_Nov15_V	Washington0100_2_2011_1115_153720.pcm	
554000_55500	U_Nov15_New Y	ork0200_2_2	2011_1115_153720.pcm	
CALL EVENTS				
	Since Since	-	T Resulting	
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Time of Day	vent Sunv	Direction	n Event Duration Statu	
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15:37:20 125	0 125 0 125	Washington	S ALERTING(1) Summary of Signaling	and
15:37:22 594	2 469 2 469	Washington	S CONNECT(255)	anu
15.37.22 719	0.125 0.125	New York	S CONN ACK(15) duration of each signa	ling
15-38-32 040	69 321	Washington	V (DTME-1) 0.088	
15-38-32 231	0 191	Washington	V DTME-2 0 101	
15:38:32 435	0 204	Washington	V DTME-3 0 101	
15:38:32 639	0.204	Washington	V DTME-4	
15:38:32 830	0 191	Washington	Midcall Digits 0.101	
15.38.33 034	0.204	Washington	V DTME-6 0.101	
15.30.33.334	0.204	Washington	V DTME 7 0.000	
13:30:33.230	0.204	washington	V DTHE 0	
15.30:33.429	0.191	# asiningcon	0.101	
15:39:06.188	32.759 103.469	wasnington	A DUF EFFOR(0)	
15:39:06.219	0.031 0.031	wasnington	BPV, Line Sync Loss BPV, Line Sync Loss, C	arrier
15:39:06.219	0.000 0.000	washington	A Frame Error(on Error)	Lothon
15:39:06.954	0.735 0.735	washington	A Frame Error(of >LOSS, Frame Error, and	other
15:39:07.688	0.734 0.734	washington	A Bipolar Violat errors inserted during	the call
15:39:07.704	0.016 0.016	Washington	A Bipolar Violat	
15:39:08.485	0.781 0.781	Washington	A Line Sync Loss	
	ART			
IN-BAND SUMM			New Tork	
IN-BAND SUMM Value	Washington			
IN-BAND SUMM Value	Washington			
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Call Detail (CSV Output Format)

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	5	ATTCARD1	111116111506-22	New York	3019242221	3016242220	_301924222:	1_Nov16_N	Jew York0221	_2011_11	16_1115	25.pcm	2	21		
_	6	ATTCARD1	111116111506-4	Washington	3016242233	3016242233	_301924223	3_Nov16_V	Vashington01	.03_2011_	1116_11	1524.pcm	1	3		
_	7	ATTCARD1	111116111506-4	New York	3019242233	3016242233	_301924223	3_Nov16_N	Jew York0203	_2011_11	16_1115	24.pcm	2	3		
_	8	ATTCARD1	111116111506-5	Washington	3016242234	3016242234	301924223	4_Nov16_V	Vashington01	.04_2011_	1116_11	1524.pcm	1	4		
_	9	ATTCARD1	111116111506-5	New York	3019242234	3016242234	_301924223	4_Nov16_N	Jew York0204	_2011_11	16_1115	24.pcm	2	4		_
-	10	ATTCARD1	111116111506-6	Washington	3016242235	3016242235	_301924223	5_Nov16_V	Vashington01	.05_2011_	1116_11	1524.pcm	1	5		
-	11	ATTCARD1	111116111506-6	New York	3019242235	3016242235	_301924223	5_Nov16_N	Jew York0205	_2011_11	16_1115	24.pcm	2	5		
-	12	ATTCARD1	111116111506-7	Washington	3016242236	3016242236	_301924223	6_Nov16_V	Vashington01	.06_2011_	1116_11	1524.pcm	1	6		
_	13	ATTCARD1	111116111506-7	New York	3019242236	3016242236	_301924223	6_Nov16_N	Jew York0206	_2011_11	16_1115	24.pcm	2	6		
-	14	ATTCARD1	111116111506-8	Washington	3016242237	3016242237	_301924223	7_Nov16_V	Vashington01	.07_2011_	1116_11	1524.pcm	1	7		
	15	ATTCARD1	111116111506-8	New York	3019242237	3016242237	_301924223	7_Nov16_N	Jew York0207	2011_11	.16_1115	24.pcm	2	7		
-	16	ATTCARD1	111116111506-9	Washington	3017242238	3017242238	_301924228	8_Nov16_V	Vashington01	.08_2011_	1116_11	1524.pcm	1	8		
	17	ATTCARD1	111116111506-9	New York	3019242288	301/242238	_301924228	8_Nov16_N	Jew York0208	2011_11	16_1115	24.pcm	2	8		
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Call Side Record (*_csr.csv)
 Supervision (*_sbf.csv)
 Alarms (*_fac.csv)
 In-band Statistics(*_vbs.csv)
 In-band Events(*_vbe.csv)



Voice Files

a ftp://192.168.30.120/TestFiles/voice	files/voicecapture1104091206	67 - Micros	soft Internet Expl	orer		
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Analyzing CDR output using EXCEL®



Analyzing CDR output using EXCEL®





Record Statistics and Advanced Filter

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	GL-CDR	-SHORTCU	JTS (ctrl+	b) -												
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1				File N	lame	Total Stati	istics		Filte	ered Statistic	s				♥	
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6				merge	ed_e	190	Total Even	nts Statist	ics			Relear	ed	MC Digits	Noise % Voice	
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Filtered Calls (Calls of Interest)

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Thank you

