

Non-Intrusive Record, Analysis, and Playback T1/E1 Calls

Analyze ISDN, SS7, Voice, Fax, Modem, & Tones

Analyze DTMF, MF, or MFC-R2 Digits

Analyze Signaling Protocols

View Calls in Time, Spectral, or Spectrogram Modes

Analyze Voice Quality, Modem/Fax Calls

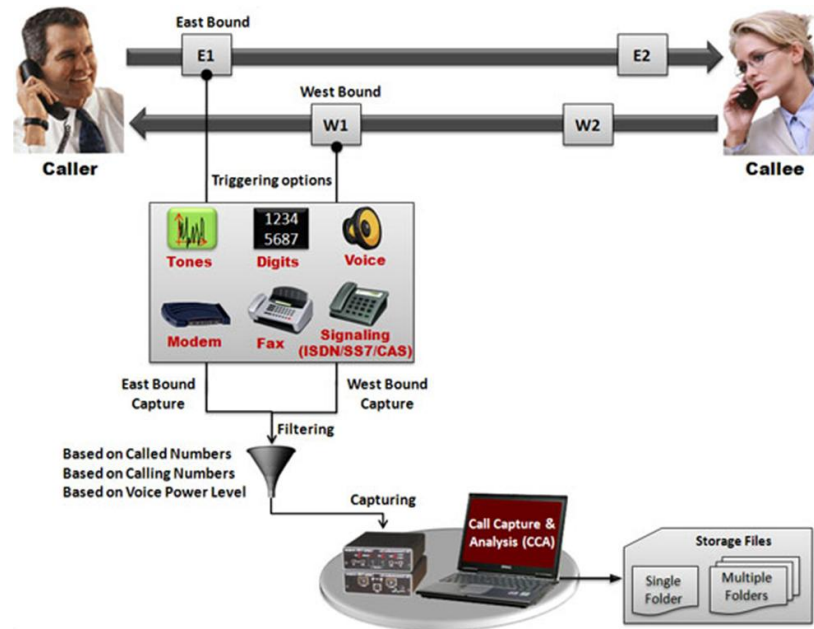
Capture Any Traffic of Specified Power Level

ISDN Triggering with Filtering options

Automatic & Manual Termination of Recording

Logs Call Summary, Facility Alarms, & Supervisory Signals (\*.csv or binary)

## T1/E1 Call Capture and Analysis



### Overview

The Call Capture and Analysis (CCA) application is used to capture calls directly from the T1/E1 lines. The system uses T1/E1 Analyzer hardware to interface non-intrusively with T1 or E1 lines. Users can capture on east and west directions simultaneously in both manual and auto scanning. For auto scanning, ISDN, SS7, CAS (R1, wink start, MFC-R2), and Traffic (voice, fax, modem, tones, & any traffic with specified power level) activated signaling triggers are supported. Subsequently, captured calls can be played back and analyzed in time and spectral modes using a commercial sound card, built-in high fidelity speakers, and audio viewing software (Adobe Audition/Goldwave).

For more information on DCME Analyzer, refer to <http://www.gl.com/callrec1.html>

### Main Features

- Both manual and auto scanning capture modes can be triggered from both directions (east and west) of transmission simultaneously.
- Captured PCM data is saved as two synchronized disk files (east and west directions) for post processing.
- All call data are captured including signaling bits, voice-band data, signaling protocol data (e.g. DTMF or MF digits), various types of traffic such as fax, modem, voice, and any traffic with specified power level.
- Unlike other traffic options, triggering on voice traffic can be fine-tuned to the power level of the voice data.
- Voice power level can be set to filter out weak or undesirable voice data.
- ISDN calls are recorded with CRV, ISDN message type, channel, and direction, called & calling numbers. ISDN calls can be captured with customized called & calling number filter.
- "Call filtering" feature is used to capture calls with a user-defined called and calling numbers rather than all calls.
- Various 'File Naming' conventions based on the type of capture. The file naming conventions suit various types of capture applications such as MFC-R2, signaling, ISDN capture, manual capture etc.
- The digit-parsing feature of CCA application helps to distinguish CAS R1 or MFC-R2 calls by prefixing called or calling numbers to the filename.



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## Applications of CCA

The Call Capture Application (CCA) is used to initiate recording of calls, either automatically or manually. The software has the capability to non-intrusively record calls with signaling and data directly from T1/E1 and 2-Wire lines. Indicated in the figure below are the channels on which ISDN calls are recorded and the files names to which data is stored. Scanning mode is possible wherein all 24 or 30 channels are scanned for call initiation and recording.

Typical applications are:

- Call recording for post analysis
- Call activity, call density, and call volume analysis
- Monitoring and recording Fax, Voice, Modem, ISDN, SS7, and CAS calls
- Filtering of Calls by "called" and "calling" number
- Call activity, call density, and call volume analysis

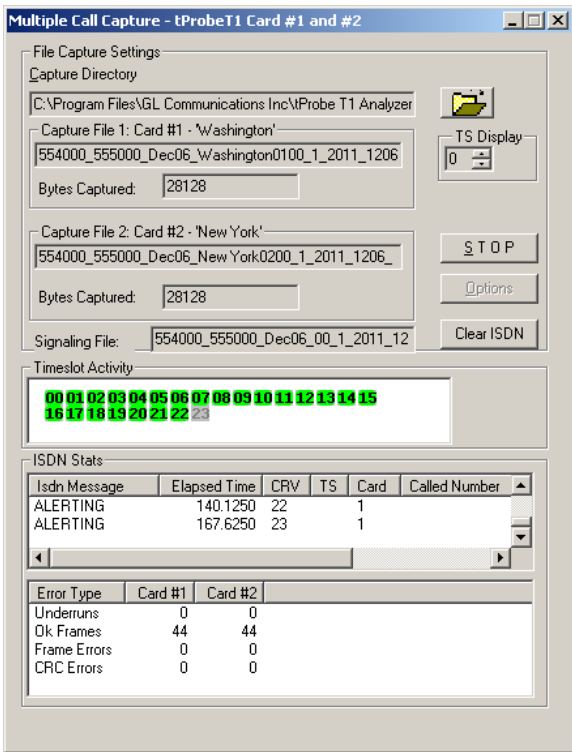


Figure: ISDN Call Capture in CCA

## Call Capture Operating Modes

The options include specifying **Auto-scan** mode or **Manual** scan mode, Start & stop signaling bits for the beginning & ending capture process, Devices, Time limit for recording, Wait for tone, CAS digit parsing, & File naming convention.

Auto Scanning and Manual Capture are the two basic capture Modes. Different ways to trigger an Auto-Scanning Capture Mode are - Signaling, Tone, Signaling + Tone, ISDN Message, SS7 Message, & Traffic such as fax, modem, voice, and any type of signal with specified power level.

## Oscilloscope (Time) and Spectral (Frequency) Views

There are several methods for viewing captured files supported by various third-party visualization programs such as **Adobe Audition** and **Goldwave** programs. Adobe Audition and Goldwave are used with a variety of file formats including PCM, wav, and others. Adobe Audition and Goldwave can be used to visualize both East and West files. Any of these graphical software programs should be installed in order to directly invoke application.

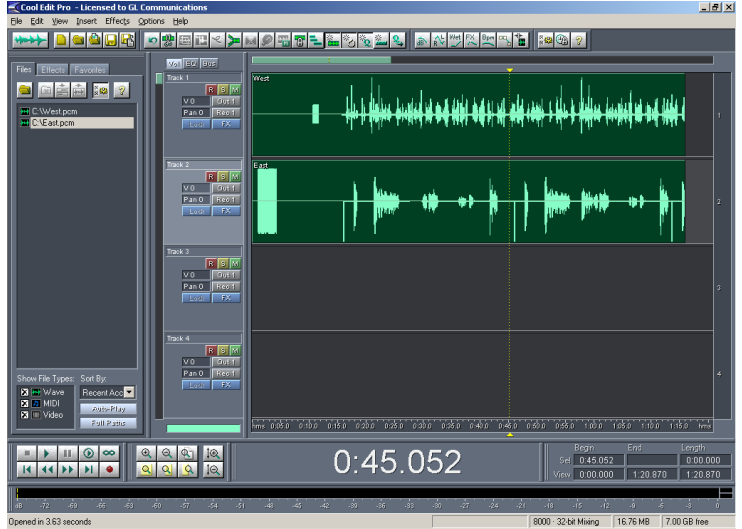


Figure: Adobe Audition Software

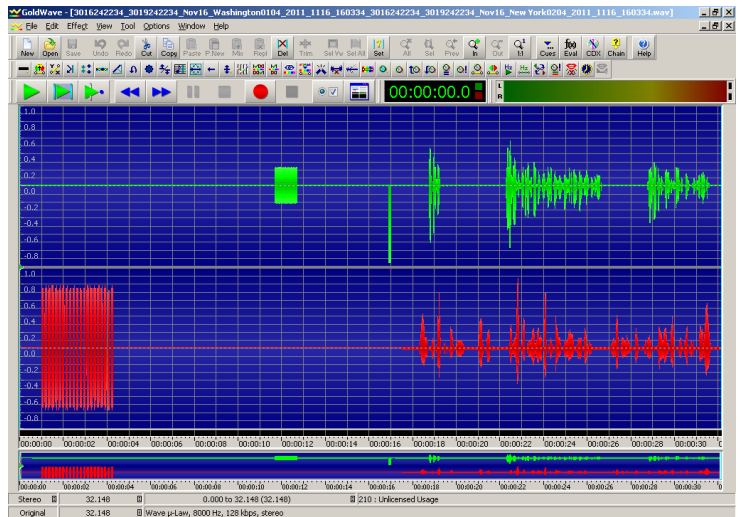


Figure: Gold Wave Software



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## Call Capture in Auto-scan Mode SS7 Call Capture Option

The Call Capture Application (CCA) is used to initiate recording of calls, either automatically or manually. The software has the capability to non-intrusively record calls with signaling and data directly from T1/E1 and 2-Wire lines. Indicated in the figure below are the channels on which ISDN calls are recorded and the files names to which data is stored. Scanning mode is possible wherein all 24 or 30 channels are scanned for call initiation and recording

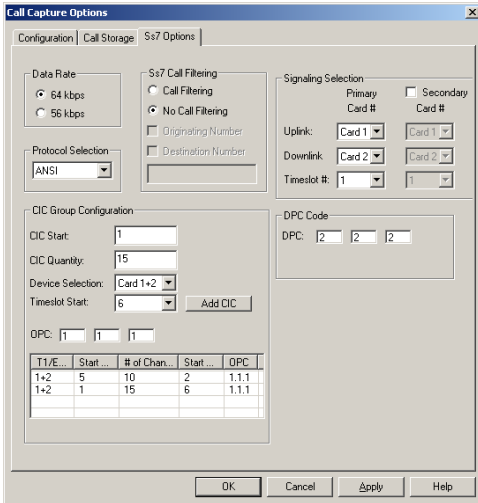


Figure: SS7 Options

## ISDN Call Capture Option with NFAS

The CCA gets triggered when any ISDN calls are placed. Capture occurs after the ISDN message, "SETUP", is detected with the called/calling number that matches the filtering definition for ISDN Call Filtering Options. CCA can be set to capture the ISDN calls on the trunks that contain D-Channel using options under NFAS

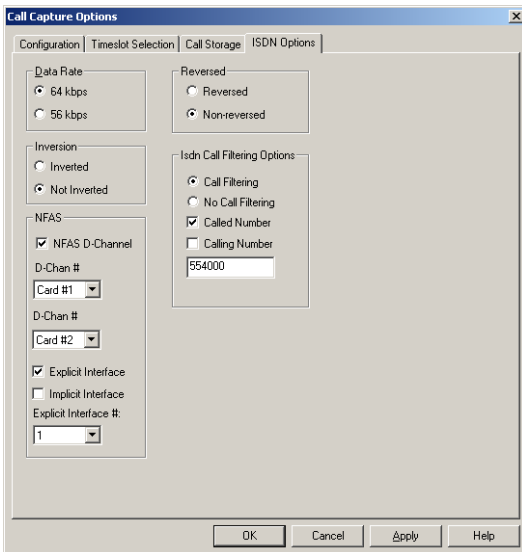


Figure: ISDN Options

## Traffic Triggered Call Capture

CCA also includes trigger for capturing calls based on various types of traffic such as fax, modem, voice, standard tones, digits, and so on.

They are V.22 bis forward channel, V.22 bis reverse channel, V.34 & 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.

Detecting the above types of traffic requires the use of the traffic algorithms. A 2048 byte (256 ms) block of data is sent to the traffic classifier. The traffic classifier determines if the data is one of the accepted types of traffic. If the condition is met, then capture of the traffic data commences. Additionally, the voice power level can be set to filter out weak or undesirable voice data.

Capture can be terminated either by specifying the silence parameters in seconds or user-defined capture limit time in minutes.

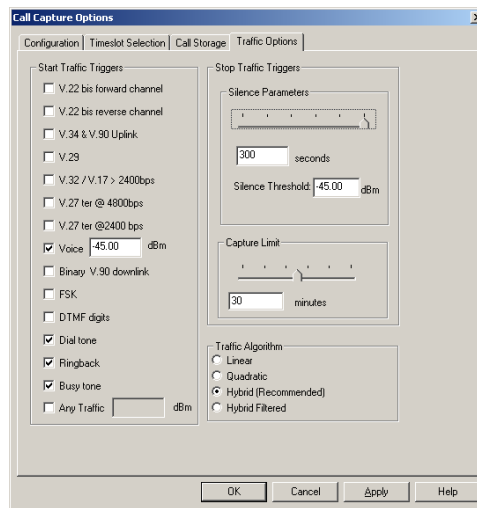


Figure: Traffic Options

## Digits, Tones, Signaling Capture Options

User-defined option is available for Tone and Signaling + Tone capture trigger options. This feature allows defining the type of tone(s) that CCA application should detect. The application can only detect single and/or dual tones. Various other options such as Power Threshold, Inter-burst Length Threshold, Absolute Twist Threshold, & S/N ratio can be specified for the tones defined.

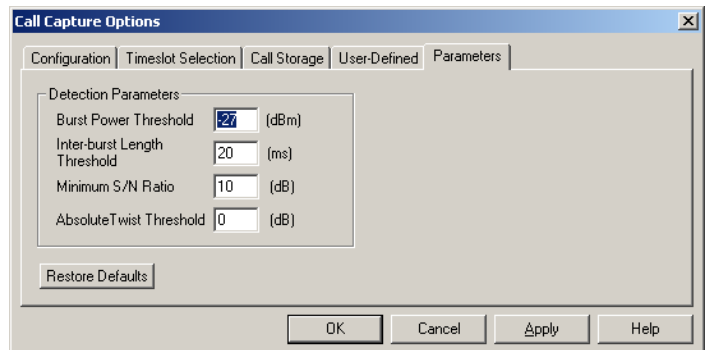


Figure: Tone Parameters Option



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## Call Storage

**File Creation** provides options of stamping captured files sequentially or with the date/time, user-defined direction labels, port/channel, and CRV if applicable. Event Logging allows users to save the call summary records, facility alarms, and supervisory signaling messages as CSV or binary files.

CCA supports creation of subfolders automatically based on the system time & date and user-specified time-period using the Call Storage feature. 'Save Folder' option places all the files captured in a desired directory with the file extension (pcm, a-law,  $\mu$ -law, & others) as specified by the user.

Ex: With '3' as Create New Subfolder Every value, and 'FolderCreatedOn' as Subfolder Name Prefix value, it will create folders every 3 Hours with the system date & time automatically appended to the folder name, for example- FolderCreatedOn0122091808.

## CAS Digit Parsing

The CAS Digit Parser is used to prefix both the called (DID) and calling (ANI) numbers to the filename of the captured calls. CCA has five built-in scripts for commonly used protocols - CAS R1 DID\*ANI, CAS R1 ANI\*DID, CAS R1 DID only, MFR2-176 (CCITT), MFR2-179 (CCITT). It also allows users to select the script of their own choice.

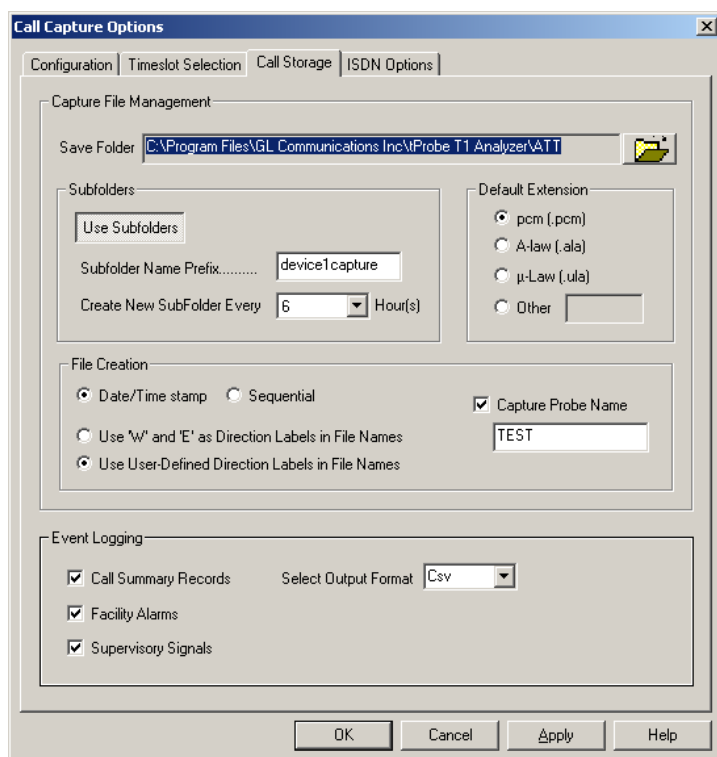


Figure: Call Storage Options

## CCA with other GL applications

**GLInsight™** - The captured files can be analyzed using GL Insight™ Modem and Fax Analysis Software for 2-wire Analog interface.

**Call Management Utility** – Provides all the necessary management tools to perform function of recording voice calls. Call records are immediately generated, indexed, and displayed once a voice recording over T1 or E1 lines is completed by the CCA.

**Call Data Records** – Call Data Records is an optional application that produces call summary and call detail reports based on the input event log files (\*\_csr.csv, \*\_fac.csv, \*\_sbf.csv) of CCA.

**Voice Band Analyzer** - VBA operates in near-real-time, processing the signal files recorded by CCA. It is an analysis tool that monitors voice band network traffic for monitoring speech and noise levels, line echo, and acoustic echo.

## Buyer's Guide

[XX030](#) - Call Capture Analysis Software and its accessories

[XX031](#) – CCA with Traffic Activated Triggering

### Related Hardware

[PTE001](#) - tProbe™ Dual T1 E1 Laptop Analyzer (Requires Basic Software)

[HTE001](#) - Universal T1/E1 Card (Requires Basic Software)

[UTE001](#) - Portable USB based Dual T1/E1 Laptop Analyzer (Requires Basic Software)

### Related Software

[CDR032](#) - Call Data Records (CDR) Software

[SA026](#) - Adobe Audition Software

[SA048](#) - Goldwave Software

[VBA032](#) - Near Real-time Voice-band Analyzer

[VQT035](#) - 2-wire Voice Recorder

[XX680](#) - T1/E1 Traffic Classifier

[CM0031](#) - Call Management Utility

[FXT001/FXT002](#) - GLInsight™ Single Fax Analysis – TDM/IP

[MDT001/MDT002](#) - GLInsight™ Single Modem Analysis-TDM/IP



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