



## *FAX & MODEM Testing*

April 2022

- Voice, Fax, and Modem Capture, Decode, and Analysis
  - PacketScan™ (over Packet Networks)
  - CCA (over 2-wire and TDM Networks)
  - GLInsight™ (over 2-wire, 4-wire, and Packet Networks)
  - Voice Recorder with DUAL UTA HD (over 2-wire)
  - VBA and FaxScan™ (over 2-wire, 4-wire, and Packet Networks)
- Fax Simulator (XXFT0) using VQuad™ DUAL UTA HD or VQuad™ Probe HD (over 2-wire, and 4-wire Networks)
- Fax Simulator (XXFT0) using tProbe™ FXO/FXS (over 2-wire)
- Fax Simulator (XXFT0) using any GL's T1 E1 analyzer platform (over T1 E1 Networks)

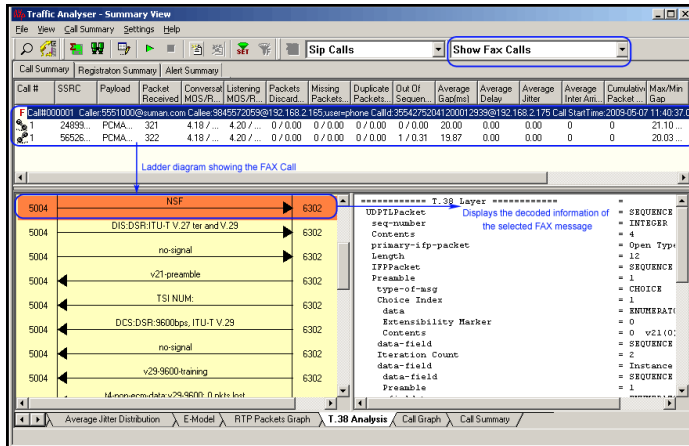
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# FAX & MODEM Testing

## Fax Capture, Decode, and Analysis using PacketScan™

(Over Packet Networks)



PacketScan™ software supports capturing and decoding of Fax (T.38 data) calls over VoIP. The fax decodes can be viewed in the form of T.38 call graph and call summary with decoded information for all T.38 messages received on the call. T.38 has been enhanced to reassemble the fragmented data and to identify the T.30 message from it. Identified T.30 message is displayed in the T.38 ladder diagram. The captured fax calls by PacketScan™ can also be analyzed using GLInsight™ by saving the fax calls directly in (\*.PCAP) Ethereal file format.

For more details, refer to [PacketScan™](#) webpage.

## Voice, Fax, Modem Capture, and Analysis using Call Capture and Analysis Software (Over TDM and 2-wire Networks)

CCA software can non-intrusively record calls directly from T1/E1 and Analog 2-wire lines. Then the captures can be analyzed using other offline tools. Voice/ Fax / Modem traffic from the 2-wire Analog interface.

- Fax traffic - V.32 / V.17, V.27, V.29
- Modem traffic - V.22 forward/reverse channel, V.34 & V.90 uplink, Binary V.90 downlink, FSK

For more details, refer to [T1/E1 Call Capture & Analysis Software](#) webpage.



Figure: CCA with tProbe™ Unit



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## Fax and Modem Decode and Analysis using GLInsight™

(Over 2-Wire, 4-Wire, and Packet Networks)

GL Insight™ enables decoding and analysis of pre-recorded modem and fax transmissions. The transmission signals can be recorded from PSTN or IP media.

GL Insight™ receives the recorded modem or fax transmissions in one of the two ways:

- As raw signal files (PCM files) - in either mono or stereo format
- As IP capture files - created by capturing devices or by software

GLInsight™ demodulates the raw transmissions and presents the decoded data in an easy to understand format. It produces extensive log files with all relevant debugging information for easy event tracing which in turn provides insight to potential sources of problems.

For more details, refer to [GL Insight™](#) webpage.

## 2-Wire Voice, Fax, Modem Recorder with DUAL UTA

GL's **Voice Recorder Software** with Dual UTA HD offers a solution for Voice/ Fax / Modem traffic capture over a 2-wire analog interface. One can non-intrusively 'tap' into the analog 2-wire line via the RJ11 interface and capture the bi-directional voice. This Voice Recorder Software is primarily used in conjunction with Dual Universal Telephony Adapter (Dual UTA HD) hardware device to capture the voice/modem/fax data manually / automatically from the 2-wire Analog interface.

For more details, refer to [Voice 2-Wire Voice/Data Capture using Dual UTA HD/ tProbe™](#) webpage.

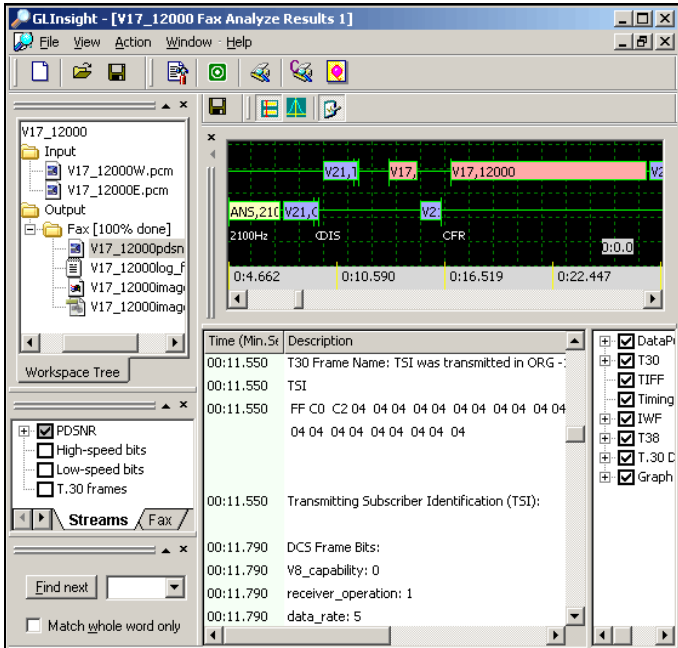


Figure: FAX Analysis using GLInsight™



Figure: Voice Recorder with Dual UTA HD



# FAX & MODEM Testing

```
C:\Windows\system32\cmd.exe
C:\Program Files\GL Communications Inc\FaxScan>set CMW_DEU_TESTING=unittest\SIP
C:\Program Files\GL Communications Inc\FaxScan>mkdir unittest\SIP
A subdirectory or file unittest\SIP already exists.
C:\Program Files\GL Communications Inc\FaxScan>FaxScan.exe SIP -p -f vectors\SIP
vectors\ntp.pcap
Total Calls Discovered: 10
Call #1 ID: 32767450180168_75_50_85
Wrote SIP ladder: unittest\SIP\ntp.pcap.CALL001.sip_ladder
Call #1 Segment #1 Media: PCM MULAW
Wrote fax ladder: unittest\SIP\ntp.pcap.CALL001_1.fax_ladder
Wrote TIFF image: unittest\SIP\ntp.pcap.CALL001_1.tif
Call #2 ID: 28438154600168_75_50_85
Wrote SIP ladder: unittest\SIP\ntp.pcap.CALL002.sip_ladder
Call #2 Segment #1 Media: PCM MULAW
Wrote fax ladder: unittest\SIP\ntp.pcap.CALL002_1.fax_ladder
Wrote TIFF image: unittest\SIP\ntp.pcap.CALL002_1.tif

Fax554000_555000_nov15_00_2_2011_1115_121429.log - Notepad
Input File Set : C:\Documents and
Settings\Madhu\Desktop\Fax554000_555000_nov15_00_2_2011_1115_121429.pcm
Output TIFF file : C:\Documents and
Settings\Madhu\Desktop\Fax554000_555000_nov15_00_2_2011_1115_121429.tif

Summary session report:
FaxTap version: 2.2
Result: Success
Rate: RATE_V17_14400
Resolution: 204x98
Encoding: MH
Page Size: A4
Bad Lines: 0
Total Lines: 1076
Pages: 1
Total Bytes: 16203
TRN Signals: 1
Doc Name: C:\Documents and
Settings\Madhu\Desktop\Fax554000_555000_nov15_00_2_2011_1115_121429.pcm
Transmit SID:
Receive SID:
PCM Read: 264480

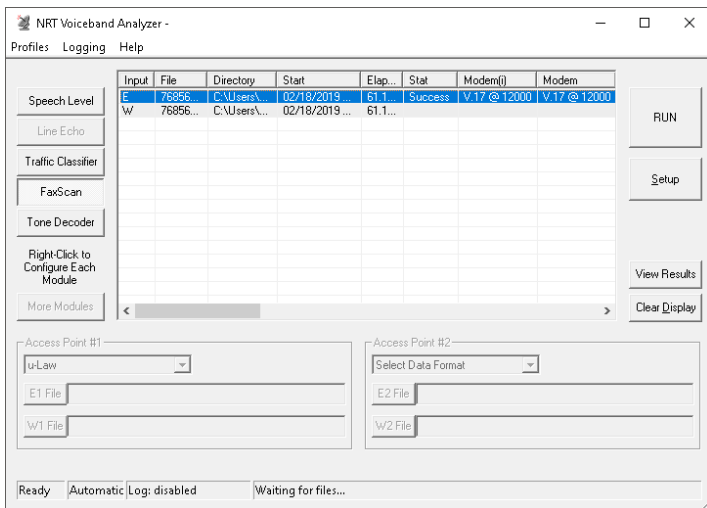
Frames
MCF: 1
TRN: 0
FTT: 0
CFR: 1
DCN: 1
PPR: 0
RTN: 0
RTP: 0
CTC: 0
CTR: 0
DIS: 1
DCS: 1
EDM: 0

Session synopsis: (timestamps in samples @ 8k)
[ 66480] Received CSI frame:
[0000] ff c0 02 04 04 04 04 04 04 04 04 04 04 04 04 04
[0010] 04 04 04 04 04 04 04 a4 f3
[ 60400] Received DIS frame:
[0000] ff c8 01 00 76 1e b3 71
```

## FaxScan™ (Over 2-Wire, 4-Wire, and Packet Networks)

FaxScan™ is a command line fax decoder/demodulator application that processes 2-Wire or 4-Wire captures and analyzes voiceband traffic files for fax traffic. FaxScan™ application is used for processing captured files and produces the Fax TIF image and other transmission information. The application is available as FaxScan™ (VBA038) and FaxScanT38™ (PKV104). The VBA038 has two versions – one, as a stand-alone command-line fax analysis application and other, integrated as a module within GL's Voice Band Analyzer application. FaxScanT38™ or the PKV104 is a stand-alone command-line fax analysis application for packet captures.

For more details, refer to [FaxScan™](#) webpage.



## FaxScan™ with VBA (Over 2-Wire, 4-Wire, and Packet Networks)

VBA FaxScan™ module (requires VBA038 license) can be used to analyze both 2-wire and 4-wire voiceband captures for Fax traffic and output fax signaling frames in a log file and fax image in TIFF format. The FaxScan™ module provides statistics for Fax traffic analysis including Fax Status, Standard, Data Rate, Resolution, Encoding, Page Size, Error Lines, Total Lines, Total Bytes, and Total Pages.

For more details, refer to [VBA FaxScan™](#) webpage.



# FAX & MODEM Testing

## Client Server Based Fax Simulator (XXFT0) (Over TDM Networks)

WCS Fax module transmits the information as electrical signals through the T1/E1 (telephone system) where the contents (text or images) as a single fixed graphic image, converting it into a bitmap. The receiving end reconverts the coded image and creates a copy of the document.

Supporting Fax and Modem standards are T.30, V.17, V.27, V.29, V.33, and V.34.

run task "FaxSimulatorT(E)1:StartFaxSim";

This task initiates the FaxSimulator Server. FaxSimulator Server runs as a task within GL Client Server Framework.

For more details, refer to [Windows Client/Server for T1/E1 Analysis](#) webpage.

## Fax Emulation using VQuad™ DUAL UTA HD or VQuad™ Probe HD

VQuad™ coupled with Dual UTA HD support sending and receiving of up to 4 independent and simultaneous T.30 faxes. TX and RX fax rate from 2400 bps to 33,600 bps with V.34 are fully supported. Fax emulation is fully automated using VQuad™ scripts and provides all pertinent real-time fax messaging with proper time sequences.

GL's VQuad™ Fax Emulation supports sending and receiving of up to 4 independent and simultaneous T.30 faxes over the Dual UTA HD hardware platform. The user can configure the TX and RX fax rate from 2400 bps to 33,600 bps with V.34 fully supported. Interfaces supported for fax generation include 2-wire FXO, 4-wire balanced, 4-wire Handset, PTT.

For more details, refer to [Fax Emulation Using VQuad™](#) webpage.



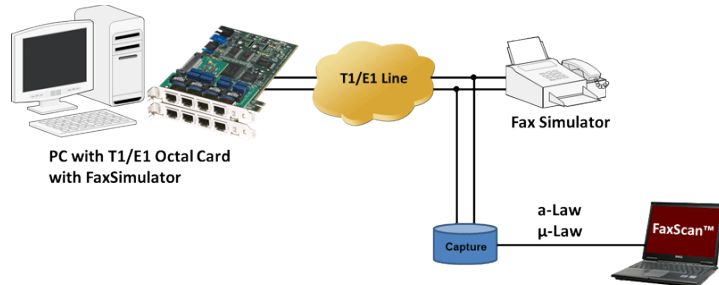
Figure: WCS Fax Simulation using tProbe™



Figure: Fax Emulation with VQuad™ Probe HD



# FAX & MODEM Testing



## Fax Simulator (XXFT0) using any GL's T1 E1 analyzer platform (over T1 E1 Networks) (over 2-wire and 4-wire)

GL has recently introduced single and bulk (100's) call Fax Simulator (XXFT0). This software is capable of transmitting and receiving over many T1 E1 timeslots or through two-wire FXO and FXS lines. The software can emulate many "virtual fax machines" – transmitter as well as receiver. All variations are supported.

Fax Simulator (XXFT0) can be used with any GL Protocol Emulation tools such as [MAPS™ CAS](#) emulator, [MAPS™ ISDN](#) emulator, and [MAPS™ SS7](#) emulator to simulate complete real time Fax calls.

For more details, refer to [Fax Simulation and Analysis over T1/E1, & Analog](#) webpage.

