
Fax Emulation and Analysis using VQuad™ and Webviewer™



818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878
Phone: (301) 670-4784 Fax: (301) 670-9187 Email: info@gl.com
Website: <https://www.gl.com>

Dual UTA HD

- 2-wire Analog (WB, NB - FXO) supporting next generation gateways
- Dual UTA HD 4-wire analog interfaces supporting Tx/Rx Headset including HATS, Cell Phone Headset, and any Handset Phone (RJ22 connection)
- RJ-11 POTS lines
- Handset Phones (POTS, Digital, VoIP)
- Cell Phones:
 - Bluetooth®
 - Mobile audio interface for Smartphones (iPhone, Android) – includes Audio Headset Jack
 - Wired Headset Smartphone ACC connectivity
- Mobile Radios with Push-to-Talk functionality

Back Panel

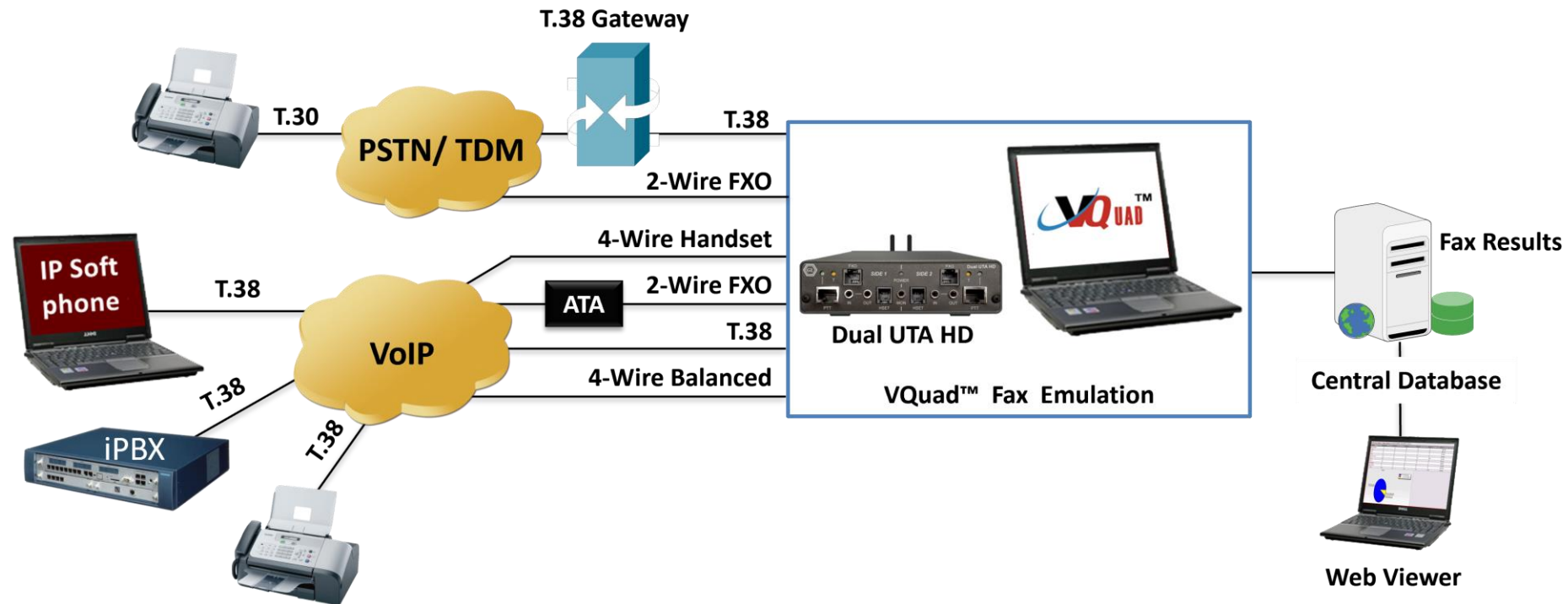


Front Panel



Fax Emulation using VQuad™

- Fax Emulation supporting up to 12 independent and simultaneous T.30 single or multiple page faxes using the Dual UTA HD hardware platform
- Configure the transmit and receive fax rate from 2,400 bps to 33,600 bps with V.34 supported.
- Interfaces supported for fax generation include 2-wire FXO and 4-wire analog
- VQuad™ Fax events include messages, summary, and errors log
- Ability to auto save fax (both East and West directions) to PCM file for enhanced analysis using GL Insight™ and GL Fax Demodulator/Decoder
- VQuad™ scripting supports both fax send and receive session configuration
- Support for querying Fax events/results/errors over web interface



VQuad™ Fax Events

- VQuad™ uses TIF files for sending and receiving fax, and the fax can be single page or multi-page
- VQuad™ Fax Emulation includes three event screens, Fax Messages, Fax Summary and Fax Errors
- Display multiple fax sessions or select a single fax session to view events only for that fax session
- The Fax status as shown on the Fax Event screen displays Total Successful and Total Failed faxes for each VQuad™ device ID

FAX Events - Messages Log

Timestamp	Device Name	Duration(sec)	Message	Content	St
10/21/24 15:58:26.941	Side1	10.860	>> DIS, len=15Bytes	33600, V34, ECM, MR, 204x98...	Pr
10/21/24 15:58:27.67	Side1	10.860	<< TSI		Pr
10/21/24 15:58:27.67	Side1	10.860	<< DCS, len=15Bytes		Pr
10/21/24 15:58:27.804	Side1	11.580	TX Train Start		Pr
10/21/24 15:58:27.804	Side1	11.580	TX Train End		Pr
10/21/24 15:58:27.828	Side2	11.740	>> TSI		Pr
10/21/24 15:58:27.828	Side2	11.860	>> DCS, len=15Bytes	33600, V34, MR, Letter, 204...	Pr
10/21/24 15:58:27.925	Side2	11.860	RX Train Start		Pr
10/21/24 15:58:27.925	Side2	11.860	RX Train End		Pr
10/21/24 15:58:27.925	Side2	11.860	<< CFR		Pr

Show Events: All

☐ Log to File:

Messages Summary Errors

☒ Auto scroll to show latest events Note, Delimit Log Information with Semicolon Open New Window Clear Status Clear Events

Side1: Success: 16, Failed: 1 Side2: Success: 16, Failed: 1 side3: Success: 11, Failed: 0 side4: Success: 11, Failed: 0

VQuad™ Fax Events – Summary Log

- The Fax Summary includes one event per fax (Fax Send and Fax Receive) which shows initial settings and final settings upon fax completion (i.e., Fax Speed, Line Sent, Bad Lines, Pages Received)
- The Fax Summary also provides insight whether the Fax was successful, or the Fax failed in which case an Error will be generated

GL VQuad(TM)

File View Functions Setup Window Help

Configure **Start/Stop**

Start/Stop Devices:

Start/Stop Traffic

Start/Stop Script

test1 test2 test3 test4

Stop All Scripts

☒ Continuous Traffic

Pause All Traffic

Start All Traffic

Fax Events

Timestamp	Phone ID	Event	Duration(sec)	Error
11/24/11 09:57:35.953	test2	Send - Successful	54.300	No Error
11/24/11 09:57:48.93	test1	Send - Successful	54.370	No Error
11/24/11 09:58:21.984	test4	Send - Successful	54.070	No Error
11/24/11 09:58:34.328	test3	Send - Successful	53.970	No Error
11/24/11 09:59:14.78	test2	Send - Successful	53.470	No Error
11/24/11 09:59:26.484	test1	Send - Successful	55.410	No Error
11/24/11 09:59:59.578	test4	Send - Successful	53.300	No Error
11/24/11 10:00:11.734	test3	Send - Successful	53.310	No Error
11/24/11 10:00:53.687	test2	Send - Successful	54.730	No Error
11/24/11 10:01:05.765	test1	Send - Successful	56.360	No Error
11/24/11 10:01:38.906	test4	Send - Successful	54.670	No Error
11/24/11 10:01:50.968	test3	Send - Successful	54.580	No Error

☐ Log to File:

Messages **Summary** Errors

☒ Auto scroll to show latest events ☐ Semicolon Delimit Log Information

Open New Window Clear Status Clear Events

test1, Success: 2439, Failed: 18 test2, Success: 2417, Failed: 23 test3, Success: 2313, Failed: 22 test4, Success: 2417, Failed: 32

Call Status Traffic Volume Script

Call Status	Traffic	Volume	Script
1. Connected	Stopped	Running	Running
2. Connected	Stopped	Running	Running
3. Connected	Stopped	Running	Running
4. Idle	None	Running	Running
5. Idle	None	Stopped	Running

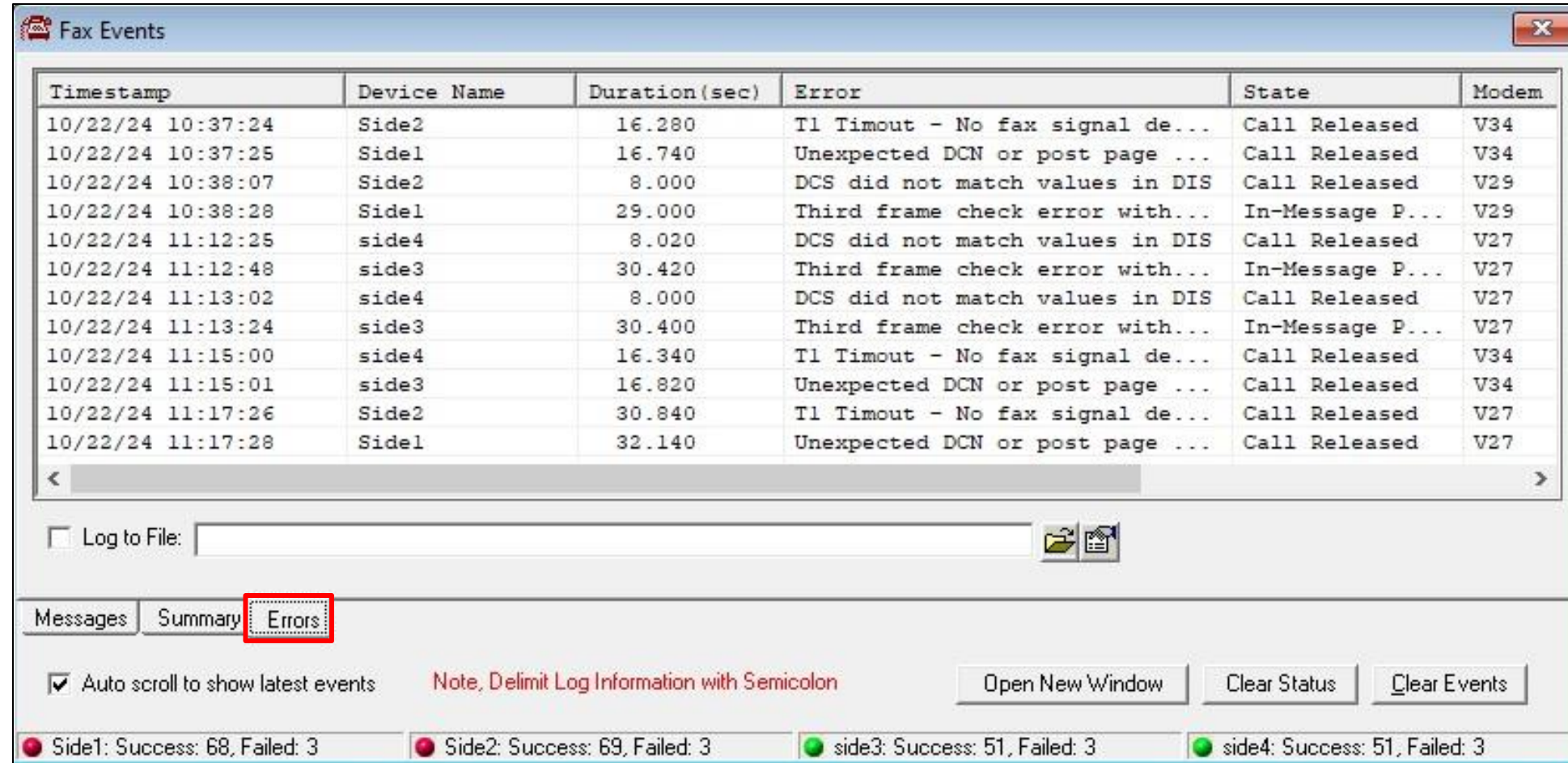
Events Error Events Detected Digits Statistics

Timestamp	Device Name	Events
11/24/2011 10:01:53...	test4	DualUTA GenericEvent: RX Stream Stopped
11/24/2011 10:01:54...	test3	Waiting 2 seconds
11/24/2011 10:01:54...	test4	Waiting 5 seconds
11/24/2011 10:01:57...	test3	Fax Stopped

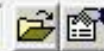
Summary Log

VQuad™ Fax Events – Error Log

- The Fax Error screen provides all Fax Errors associated with the Fax Send/Receive. Additional information is provided for each Fax error to understand the cause of the error. All event screens can be saved to text file in real-time



Timestamp	Device Name	Duration(sec)	Error	State	Modem
10/22/24 10:37:24	Side2	16.280	T1 Timeout - No fax signal de...	Call Released	V34
10/22/24 10:37:25	Side1	16.740	Unexpected DCN or post page ...	Call Released	V34
10/22/24 10:38:07	Side2	8.000	DCS did not match values in DIS	Call Released	V29
10/22/24 10:38:28	Side1	29.000	Third frame check error with...	In-Message P...	V29
10/22/24 11:12:25	side4	8.020	DCS did not match values in DIS	Call Released	V27
10/22/24 11:12:48	side3	30.420	Third frame check error with...	In-Message P...	V27
10/22/24 11:13:02	side4	8.000	DCS did not match values in DIS	Call Released	V27
10/22/24 11:13:24	side3	30.400	Third frame check error with...	In-Message P...	V27
10/22/24 11:15:00	side4	16.340	T1 Timeout - No fax signal de...	Call Released	V34
10/22/24 11:15:01	side3	16.820	Unexpected DCN or post page ...	Call Released	V34
10/22/24 11:17:26	Side2	30.840	T1 Timeout - No fax signal de...	Call Released	V27
10/22/24 11:17:28	Side1	32.140	Unexpected DCN or post page ...	Call Released	V27

☐ Log to File: 

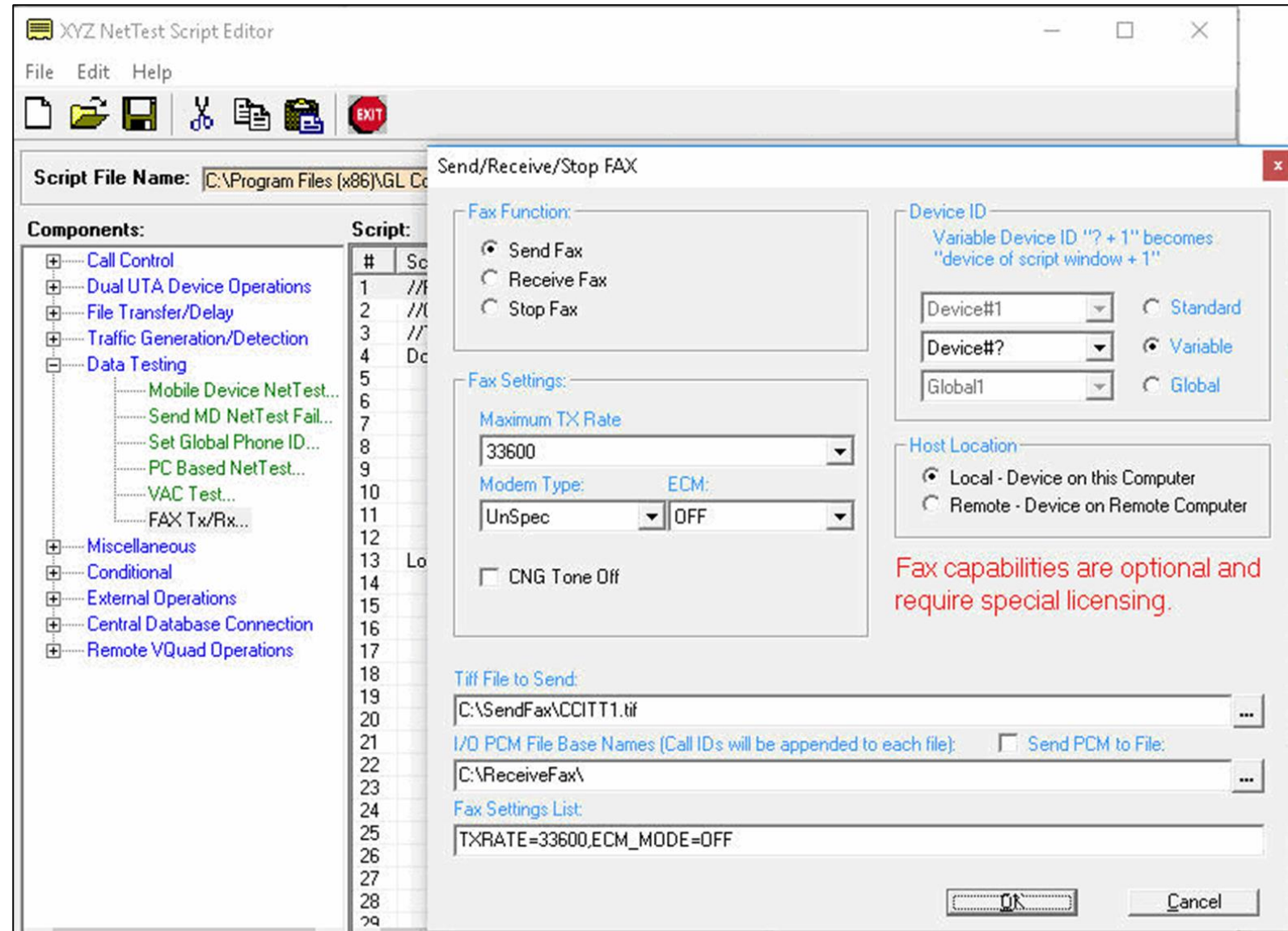
Messages Summary **Errors**

☒ Auto scroll to show latest events Note, Delimit Log Information with Semicolon Open New Window Clear Status Clear Events

● Side1: Success: 68, Failed: 3 ● Side2: Success: 69, Failed: 3 ● side3: Success: 51, Failed: 3 ● side4: Success: 51, Failed: 3

Fax Tx/Rx Configuration

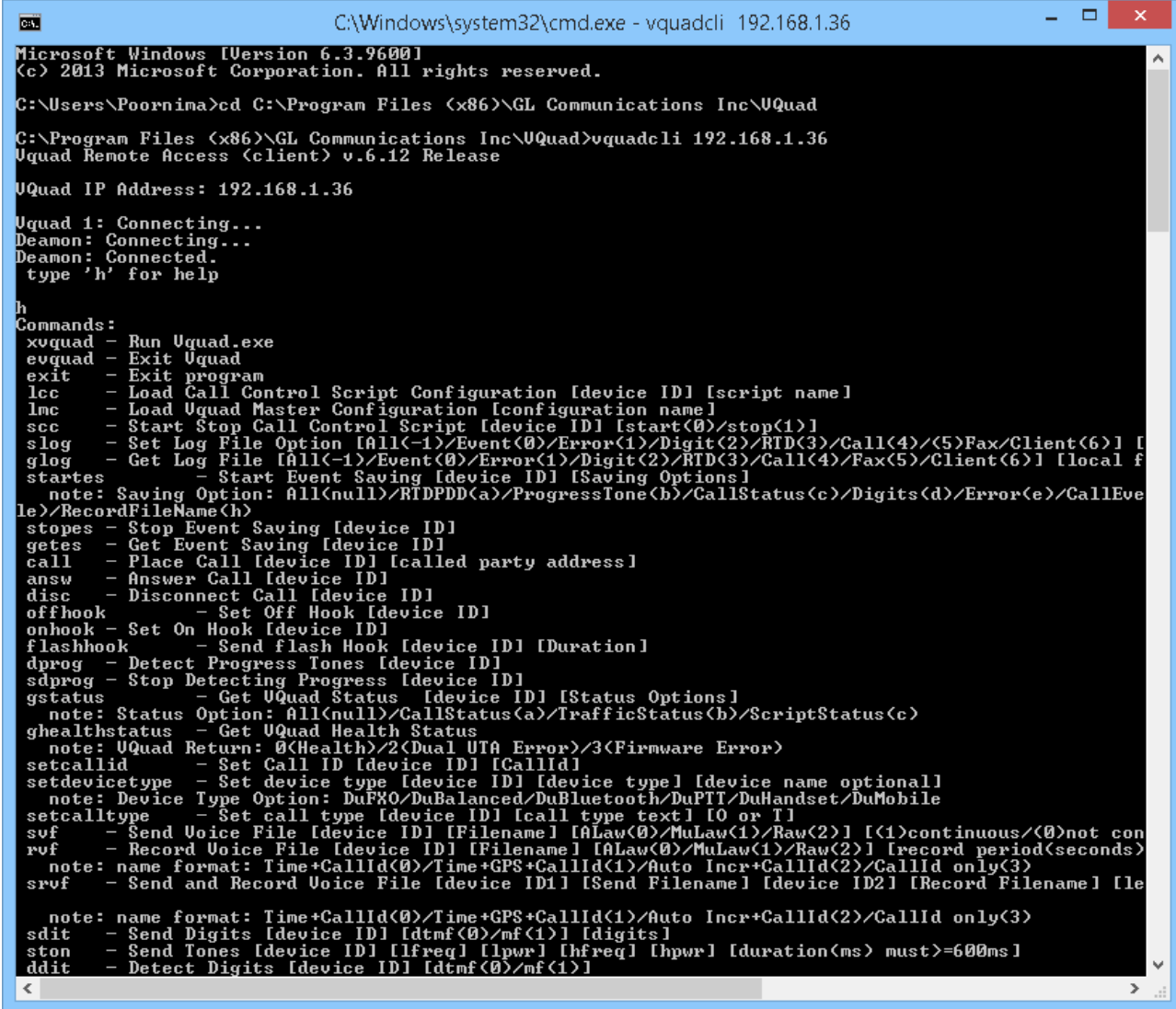
- VQuad™ scripting provides the ability to send and receive a fax session along with specifying necessary fax configuration settings
- User can select Tx/Rx rate or Modem type. The GL Fax solution will auto downgrade fax speed based on network
- The settings include Max Transmit Rate and Min Receive Rate which can effectively restrict available fax sessions
- The other configuration settings include:
 - ECM (Error Correction mode) on / off option to automatically detect and correct errors
 - RX Image Coding (receive fax only) options - MH (Modified Huffman), MR (Modified read), MMR (Modified READ)
 - Auto saved fax (both east and west) to PCM file can be analyzed using GL Insight and GL Fax Extractor



VQuad™ Remote Control

VQuad™ CLI (Windows)

- VQuad™ CLI and API is enhanced to support fax simulation (both Windows® and Linux)
- The VQuad™ Remote Access (Client) allows VQuad™ operations to be remotely controlled by one (or several) VQuad™ clients over a LAN, WAN, or Internet



```
C:\Windows\system32\cmd.exe - vquadcli 192.168.1.36

Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

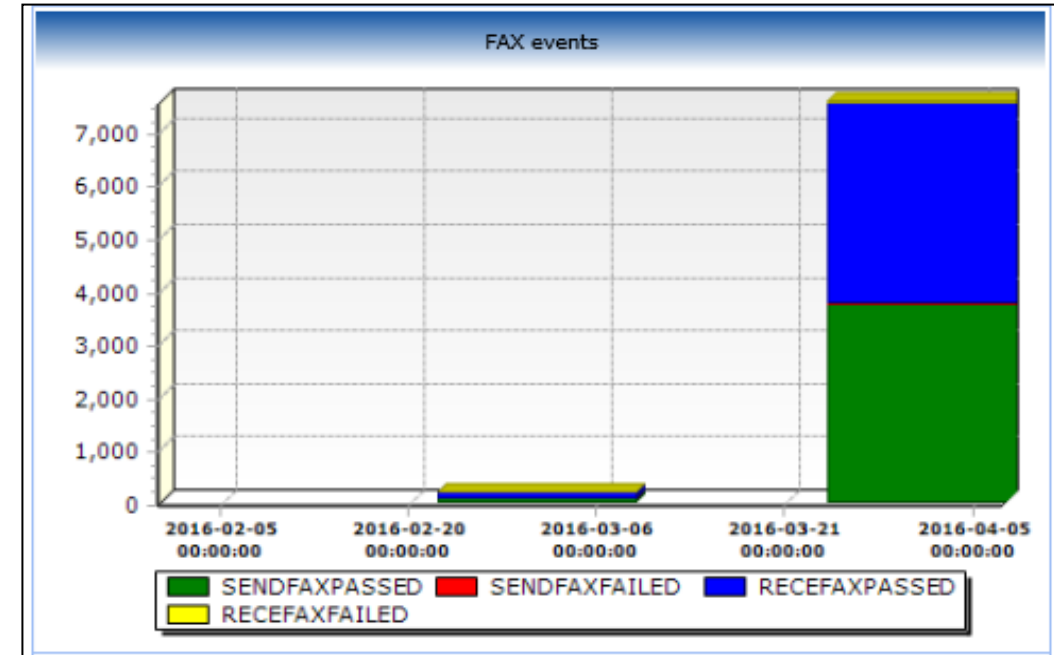
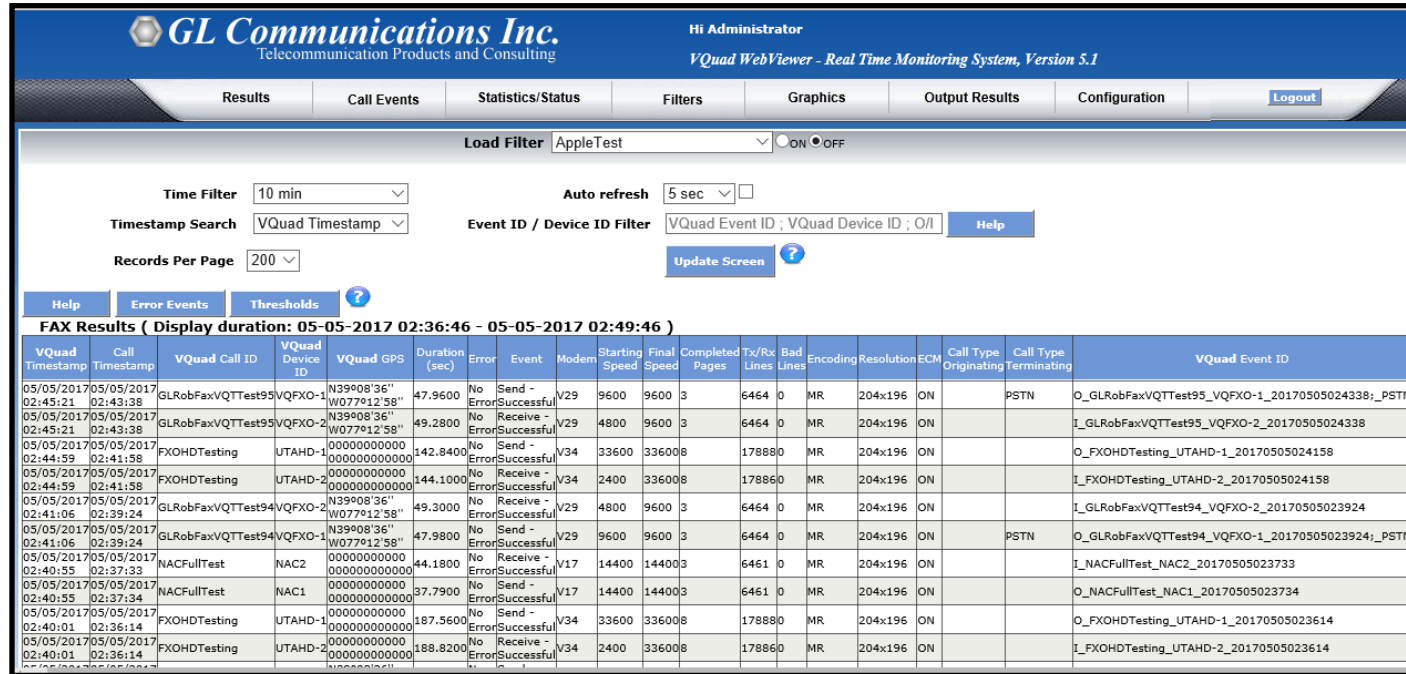
C:\Users\Poornima>cd C:\Program Files (x86)\GL Communications Inc\UQuad
C:\Program Files (x86)\GL Communications Inc\UQuad>vquadcli 192.168.1.36
Uquad Remote Access (client) v.6.12 Release

Uquad IP Address: 192.168.1.36

Uquad 1: Connecting...
Daemon: Connecting...
Daemon: Connected.
type 'h' for help

h
Commands:
xvquad - Run Uquad.exe
evquad - Exit Uquad
exit - Exit program
lcc - Load Call Control Script Configuration [device ID] [script name]
lmc - Load Uquad Master Configuration [configuration name]
scc - Start Stop Call Control Script [device ID] [start<0>/stop<1>]
slog - Set Log File Option [All<-1>/Event<0>/Error<1>/Digit<2>/RTD<3>/Call<4>/Fax<5>/Client<6>] [
glog - Get Log File [All<-1>/Event<0>/Error<1>/Digit<2>/RTD<3>/Call<4>/Fax<5>/Client<6>] [local f
startes - Start Event Saving [device ID] [Saving Options]
note: Saving Option: All<null>/RTDPDD<a>/ProgressTone<b>/CallStatus<c>/Digits<d>/Error<e>/CallEve
le>/RecordFileName<h>
stopes - Stop Event Saving [device ID]
getes - Get Event Saving [device ID]
call - Place Call [device ID] [called party address]
answ - Answer Call [device ID]
disc - Disconnect Call [device ID]
offhook - Set Off Hook [device ID]
onhook - Set On Hook [device ID]
flashhook - Send flash Hook [device ID] [Duration]
dprog - Detect Progress Tones [device ID]
sdprog - Stop Detecting Progress [device ID]
gstatus - Get Uquad Status [device ID] [Status Options]
note: Status Option: All<null>/CallStatus<a>/TrafficStatus<b>/ScriptStatus<c>
ghealthstatus - Get Uquad Health Status
note: UQuad Return: 0<Health>/2<Dual UTA Error>/3<Firmware Error>
setcallid - Set Call ID [device ID] [CallId]
setdevicetype - Set device type [device ID] [device type] [device name optional]
note: Device Type Option: DuFXO/DuBalanced/DuBluetooth/DuPIT/DuHandset/DuMobile
setcalltype - Set call type [device ID] [call type text] I0 or I1
svf - Send Voice File [device ID] [Filename] [ALaw<0>/MuLaw<1>/Raw<2>] [(<1>continuous/<0>not con
rvf - Record Voice File [device ID] [Filename] [ALaw<0>/MuLaw<1>/Raw<2>] [record period<seconds>]
note: name format: Time+CallId<0>/Time+GPS+CallId<1>/Auto Incr+CallId<2>/CallId only<3>
srvf - Send and Record Voice File [device ID] [Send Filename] [device ID2] [Record Filename] [le
note: name format: Time+CallId<0>/Time+GPS+CallId<1>/Auto Incr+CallId<2>/CallId only<3>
sdit - Send Digits [device ID] [dtmf<0>/mf<1>] [digits]
ston - Send Tones [device ID] [lfreq] [lpwr] [hfreq] [duration<ms> must>=600ms]
ddit - Detect Digits [device ID] [dtmf<0>/mf<1>]
```


Remote Client WebViewer™



- The VQuad™ Fax emulation summary and error results can be sent to the WebViewer™ Central database. These events can be queried using the WebViewer™ web-based browser
- From the WebViewer™, one can filter the results based on specific Error, Starting or Ending speed, Completed pages, Tx/Rx Lines including Bad Lines, Resolution and ECM settings

VQuad™ Probe HD

A Self-Contained Unit with VQuad™, Dual UTA HD, and PC

Following PC interfaces are embedded in the VQuad™ Probe HD along with the Dual UTA HD interfaces:

- Multiple USB ports including 2 on the front panel and an Ethernet port at the back panel
- In-built mSATA solid-state hard drive (256GB)
- In-built standard 8G memory
- Intel NUC Core i3 or optional i7 equivalent
- Windows® 11 64-bit Pro Operating System

Front Panel



Back Panel

mTOP™ Rack System



GL's VQuad™ mTOP™ solution includes high density Rackmount and **portable Probe** variants. mTOP™ Probe is all-in-one self-contained VQuad™ with Dual UTA HD test instrument along with PC interface designed for conveniently testing independent telephony devices in your lab.

Thank you