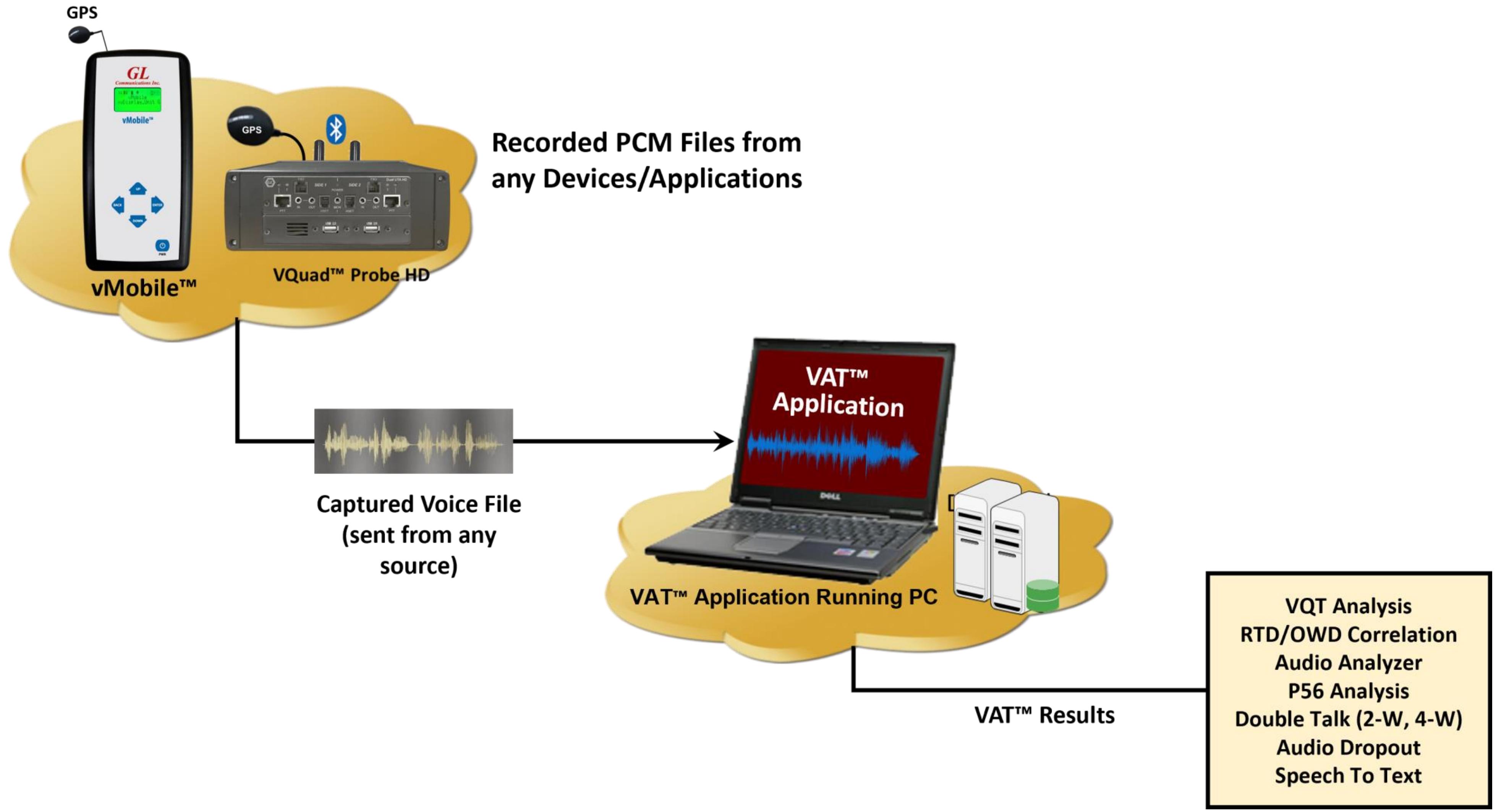
Voice Analysis Tool (VAT™)

GL Communications Inc.
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

Voice Analysis Tool (VAT™)



GPS

vMobile™

VQuad™ Probe HD

Recorded PCM Files from
any Devices/Applications

Captured Voice File
(sent from any
source)

VAT™ Application

VAT™ Application Running PC

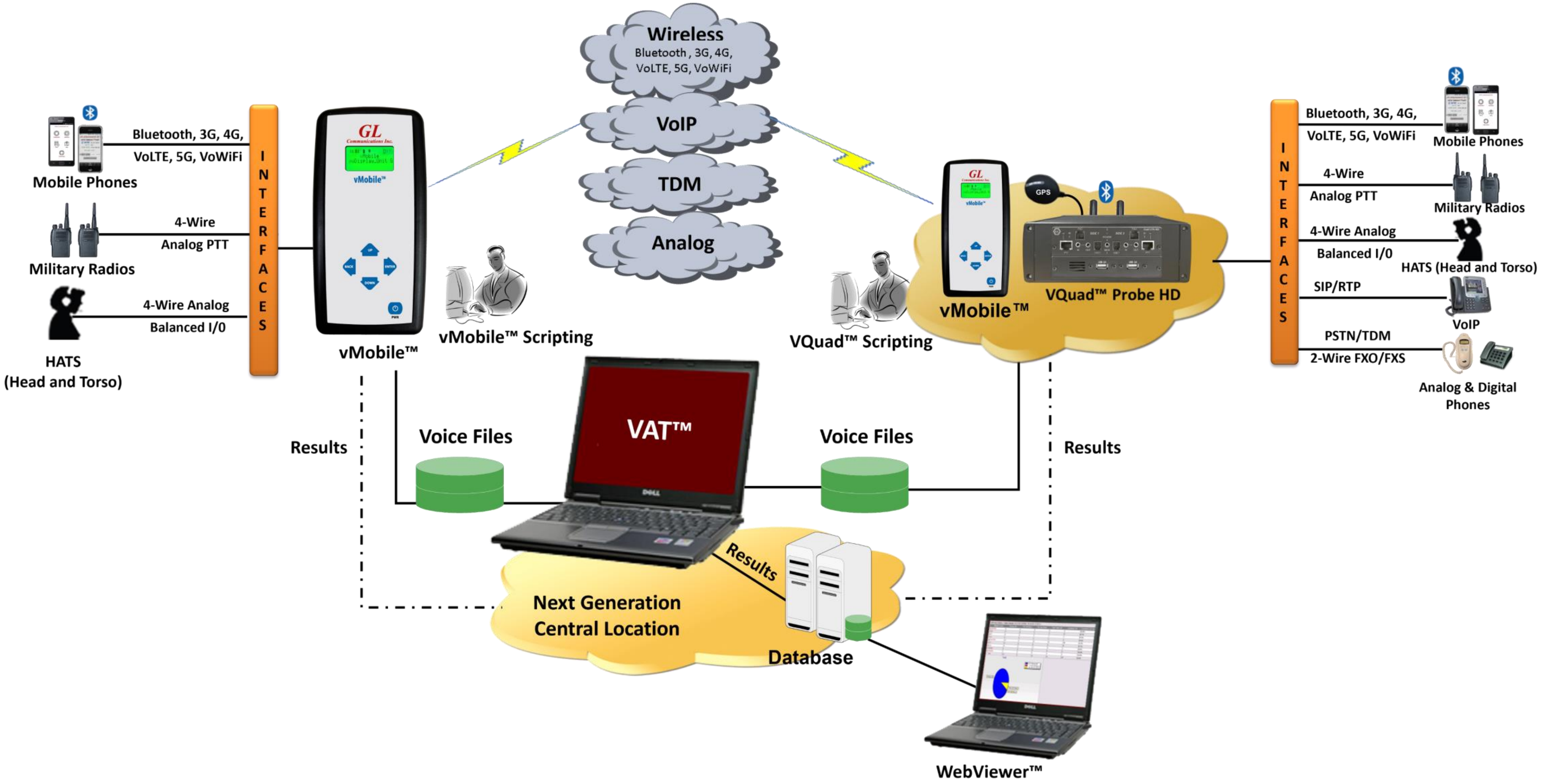
VAT™ Results

VQT Analysis
RTD/OWD Correlation
Audio Analyzer
P56 Analysis
Double Talk (2-W, 4-W)
Audio Dropout
Speech To Text

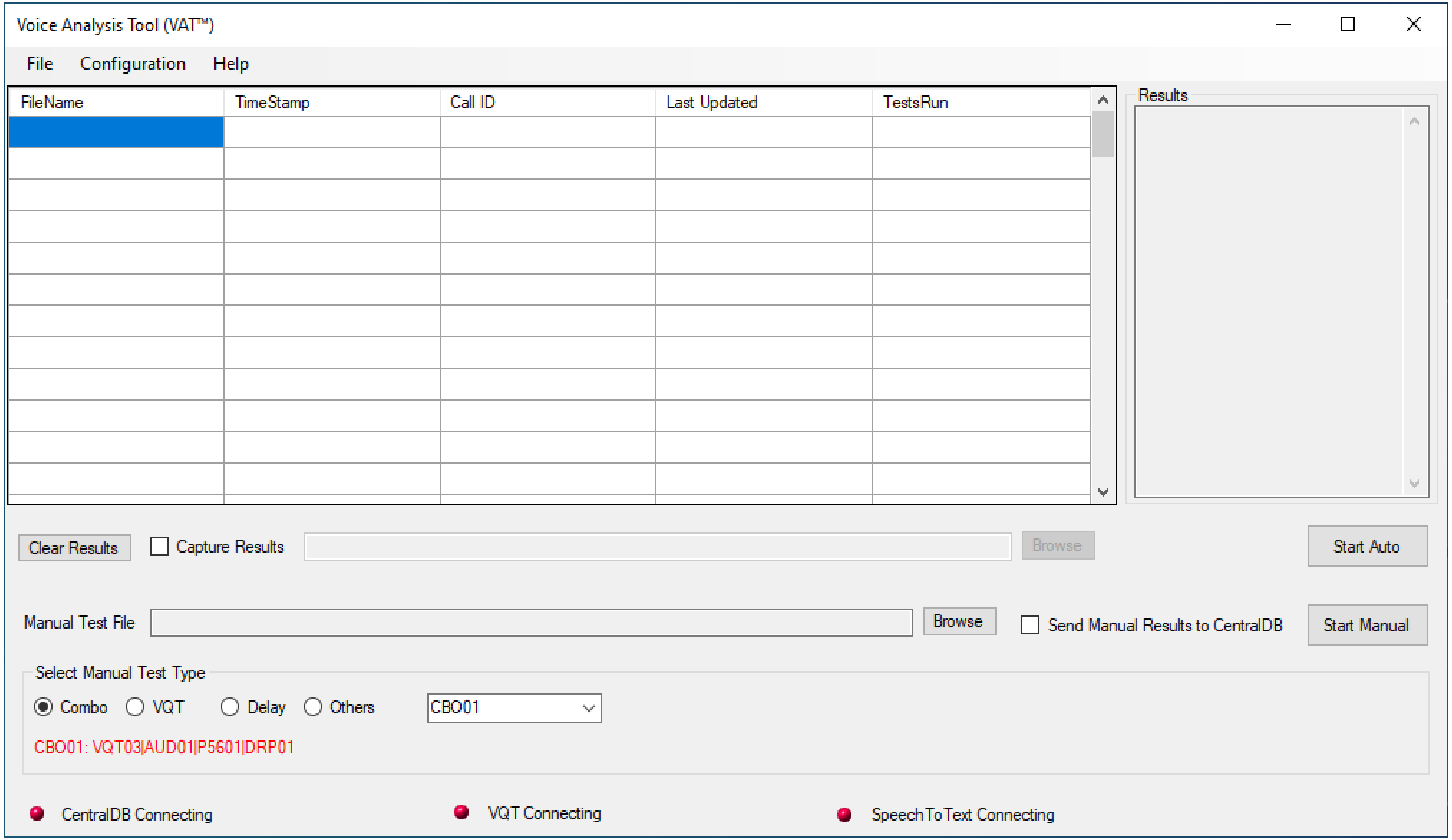
Features

- GL’s VAT™ supports analyzing any Raw PCM voice file including NB, WB, and SWB. Audio files can be generated from any application including GL VQuad™ and vMobile™
- Fully automated operation with log file containing results and stored in the GL Central Database which can be accessed easily using the GL WebViewer™
- VAT™ CLI (Command Line Interface) supports remote operation
- Audio analysis includes, Round Trip and One Way Delay, Dropout Audio analysis, Double-Talk, Power Level and Frequency Analysis, Speech Activity, Active Speech Level and Noise Level, and DC Offset
- Supports VQT analysis when coupled with the GL VQT software
- Supports multiple analytical tests per individual voice file

VAT™ Operations


Wireless
Bluetooth , 3G, 4G, VoLTE, 5G, VoWiFi
VoIP
TDM
Analog
Mobile Phones
Bluetooth, 3G, 4G, VoLTE, 5G, VoWiFi
Military Radios
4-Wire Analog PTT
HATS (Head and Torso)
4-Wire Analog Balanced I/0
INTERFACES
vMobile™
vMobile™ Scripting
VQuad™ Scripting
vMobile™
VQuad™ Probe HD
GPS
INTERFACES
Bluetooth, 3G, 4G, VoLTE, 5G, VoWiFi
Mobile Phones
4-Wire Analog PTT
Military Radios
4-Wire Analog Balanced I/0
HATS (Head and Torso)
SIP/RTP
VoIP
PSTN/TDM 2-Wire FXO/FXS
Analog & Digital Phones
Results
Voice Files
VAT™
Voice Files
Results
Results
Next Generation Central Location
Database
WebViewer™

VAT™ Application



Voice Analysis Tool (VAT™)

FileName	TimeStamp	Call ID	Last Updated	TestsRun

☐ Capture Results

Manual Test File

☐ Send Manual Results to CentralDB

Select Manual Test Type

● Combo ○ VQT ○ Delay ○ Others

CBO01

CBO01: VQT03|AUD01|P5601|DRP01

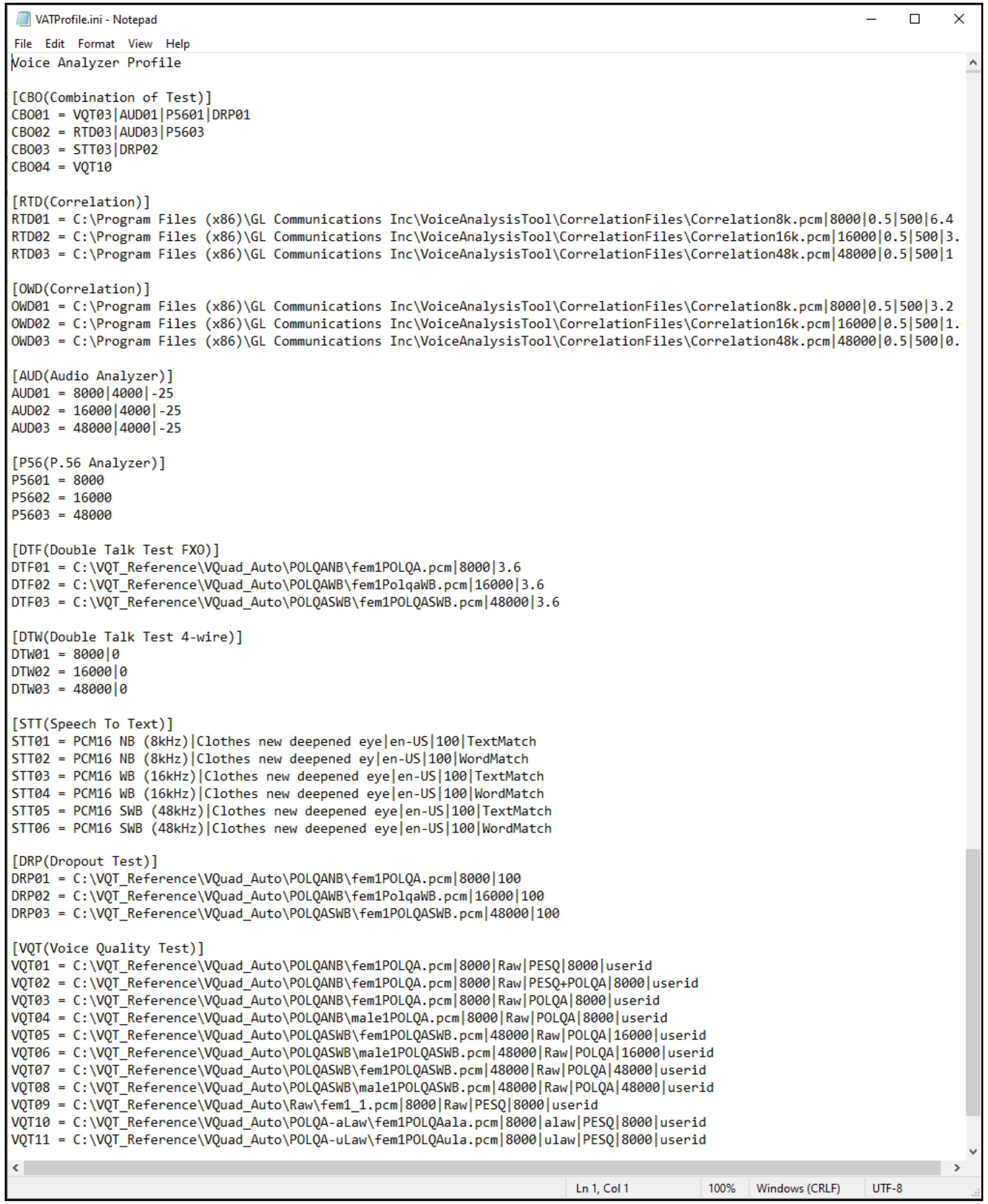
● CentralDB Connecting

● VQT Connecting

● SpeechToText Connecting

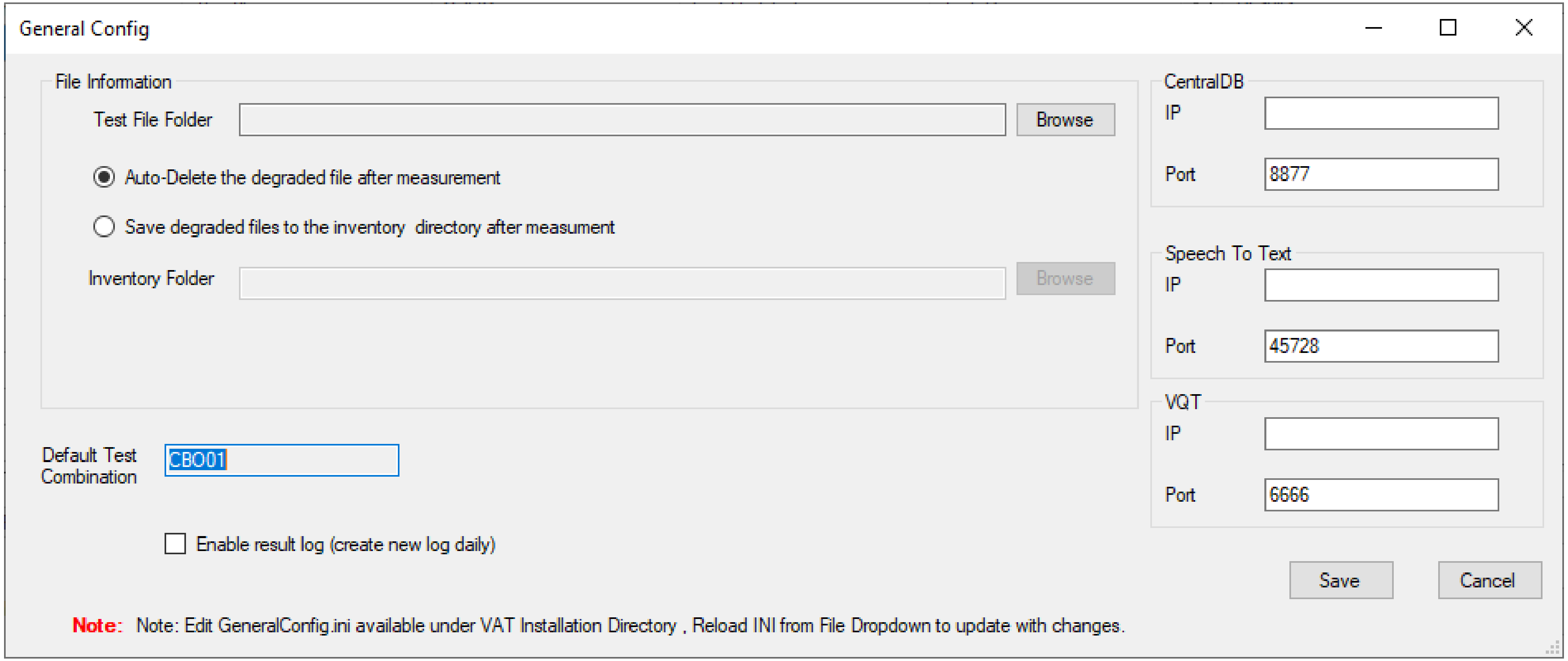
File
Configuration
Help
Results
Clear Results
Browse
Start Auto
Browse
Start Manual

VAT™ INI File



```
Voice Analyzer Profile

[CBO(Combination of Test)]
CBO01 = VQT03|AUD01|P5601|DRP01
CBO02 = RTD03|AUD03|P5603
CBO03 = STT03|DRP02
CBO04 = VQT10

[RTD(Correlation)]
RTD01 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation8k.pcm|8000|0.5|500|6.4
RTD02 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation16k.pcm|16000|0.5|500|3.
RTD03 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation48k.pcm|48000|0.5|500|1

[OWD(Correlation)]
OWD01 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation8k.pcm|8000|0.5|500|3.2
OWD02 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation16k.pcm|16000|0.5|500|1.
OWD03 = C:\Program Files (x86)\GL Communications Inc\VoiceAnalysisTool\CorrelationFiles\Correlation48k.pcm|48000|0.5|500|0.

[AUD(Audio Analyzer)]
AUD01 = 8000|4000|-25
AUD02 = 16000|4000|-25
AUD03 = 48000|4000|-25

[P56(P.56 Analyzer)]
P5601 = 8000
P5602 = 16000
P5603 = 48000

[DTF(Double Talk Test FXO)]
DTF01 = C:\VQT_Reference\VQuad_Auto\POLQANB\fem1POLQA.pcm|8000|3.6
DTF02 = C:\VQT_Reference\VQuad_Auto\POLQAWB\fem1PolqaWB.pcm|16000|3.6
DTF03 = C:\VQT_Reference\VQuad_Auto\POLQASWB\fem1POLQASWB.pcm|48000|3.6

[DTW(Double Talk Test 4-wire)]
DTW01 = 8000|0
DTW02 = 16000|0
DTW03 = 48000|0

[STT(Speech To Text)]
STT01 = PCM16 NB (8kHz)|Clothes new deepened eye|en-US|100|TextMatch
STT02 = PCM16 NB (8kHz)|Clothes new deepened ey|en-US|100|WordMatch
STT03 = PCM16 WB (16kHz)|Clothes new deepened eye|en-US|100|TextMatch
STT04 = PCM16 WB (16kHz)|Clothes new deepened eye|en-US|100|WordMatch
STT05 = PCM16 SWB (48kHz)|Clothes new deepened eye|en-US|100|TextMatch
STT06 = PCM16 SWB (48kHz)|Clothes new deepened eye|en-US|100|WordMatch

[DRP(Dropout Test)]
DRP01 = C:\VQT_Reference\VQuad_Auto\POLQANB\fem1POLQA.pcm|8000|100
DRP02 = C:\VQT_Reference\VQuad_Auto\POLQAWB\fem1PolqaWB.pcm|16000|100
DRP03 = C:\VQT_Reference\VQuad_Auto\POLQASWB\fem1POLQASWB.pcm|48000|100

[VQT(Voice Quality Test)]
VQT01 = C:\VQT_Reference\VQuad_Auto\POLQANB\fem1POLQA.pcm|8000|Raw|PESQ|8000|userid
VQT02 = C:\VQT_Reference\VQuad_Auto\POLQANB\fem1POLQA.pcm|8000|Raw|PESQ+POLQA|8000|userid
VQT03 = C:\VQT_Reference\VQuad_Auto\POLQANB\fem1POLQA.pcm|8000|Raw|POLQA|8000|userid
VQT04 = C:\VQT_Reference\VQuad_Auto\POLQANB\male1POLQA.pcm|8000|Raw|POLQA|8000|userid
VQT05 = C:\VQT_Reference\VQuad_Auto\POLQASWB\fem1POLQASWB.pcm|48000|Raw|POLQA|16000|userid
VQT06 = C:\VQT_Reference\VQuad_Auto\POLQASWB\male1POLQASWB.pcm|48000|Raw|POLQA|16000|userid
VQT07 = C:\VQT_Reference\VQuad_Auto\POLQASWB\fem1POLQASWB.pcm|48000|Raw|POLQA|48000|userid
VQT08 = C:\VQT_Reference\VQuad_Auto\POLQASWB\male1POLQASWB.pcm|48000|Raw|POLQA|48000|userid
VQT09 = C:\VQT_Reference\VQuad_Auto\Raw\fem1_1.pcm|8000|Raw|PESQ|8000|userid
VQT10 = C:\VQT_Reference\VQuad_Auto\POLQA-aLaw\fem1POLQAala.pcm|8000|alaw|PESQ|8000|userid
VQT11 = C:\VQT_Reference\VQuad_Auto\POLQA-uLaw\fem1POLQAula.pcm|8000|ulaw|PESQ|8000|userid
```

General Configuration


General Config
File Information
Browse
Browse
CentralDB
Speech To Text
VQT
Save
Cancel

Test File Folder

● Auto-Delete the degraded file after measurement

○ Save degraded files to the inventory directory after measument

Inventory Folder

Default Test Combination: CBO01

☐ Enable result log (create new log daily)

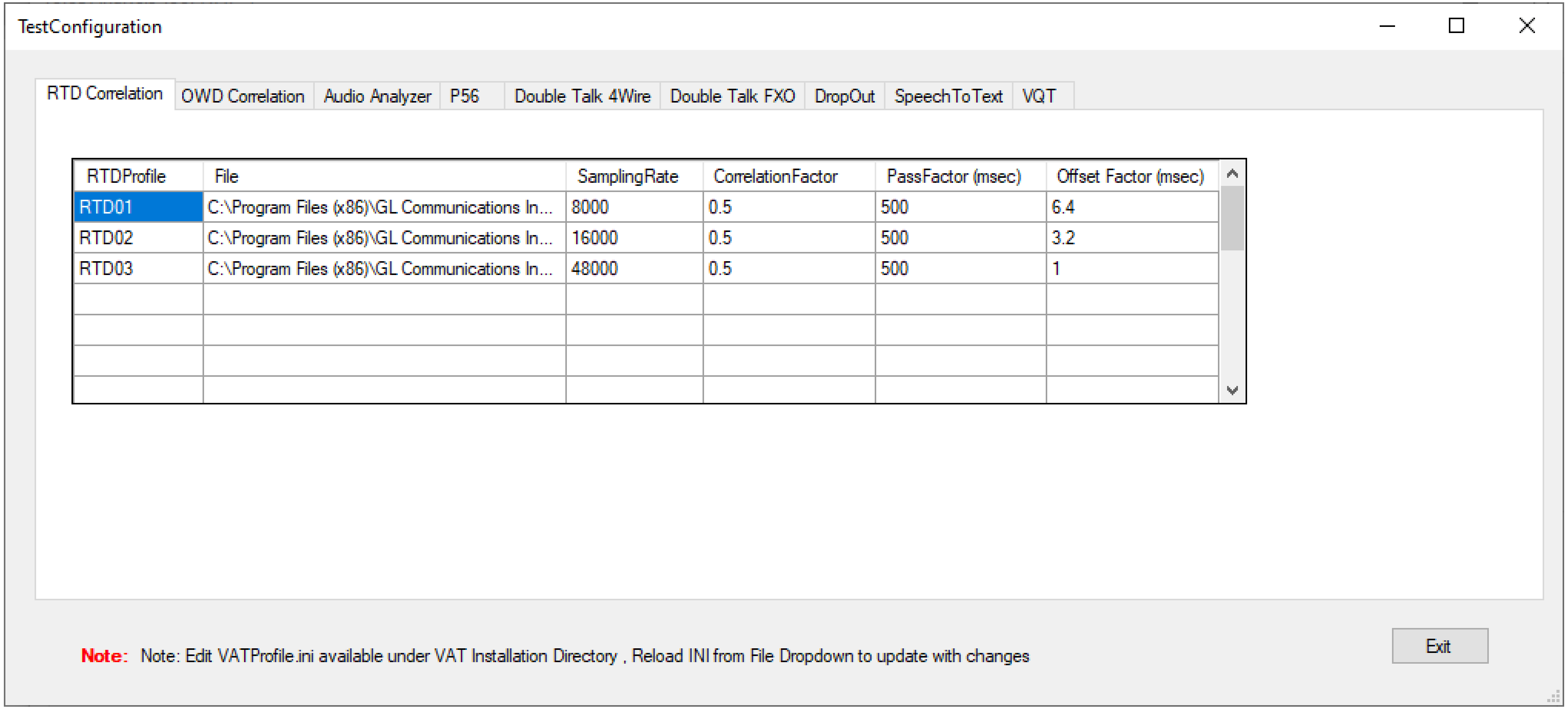
CentralDB IP:
CentralDB Port: 8877

Speech To Text IP:
Speech To Text Port: 45728

VQT IP:
VQT Port: 6666

Note: Note: Edit GeneralConfig.ini available under VAT Installation Directory , Reload INI from File Dropdown to update with changes.

Test Configuration

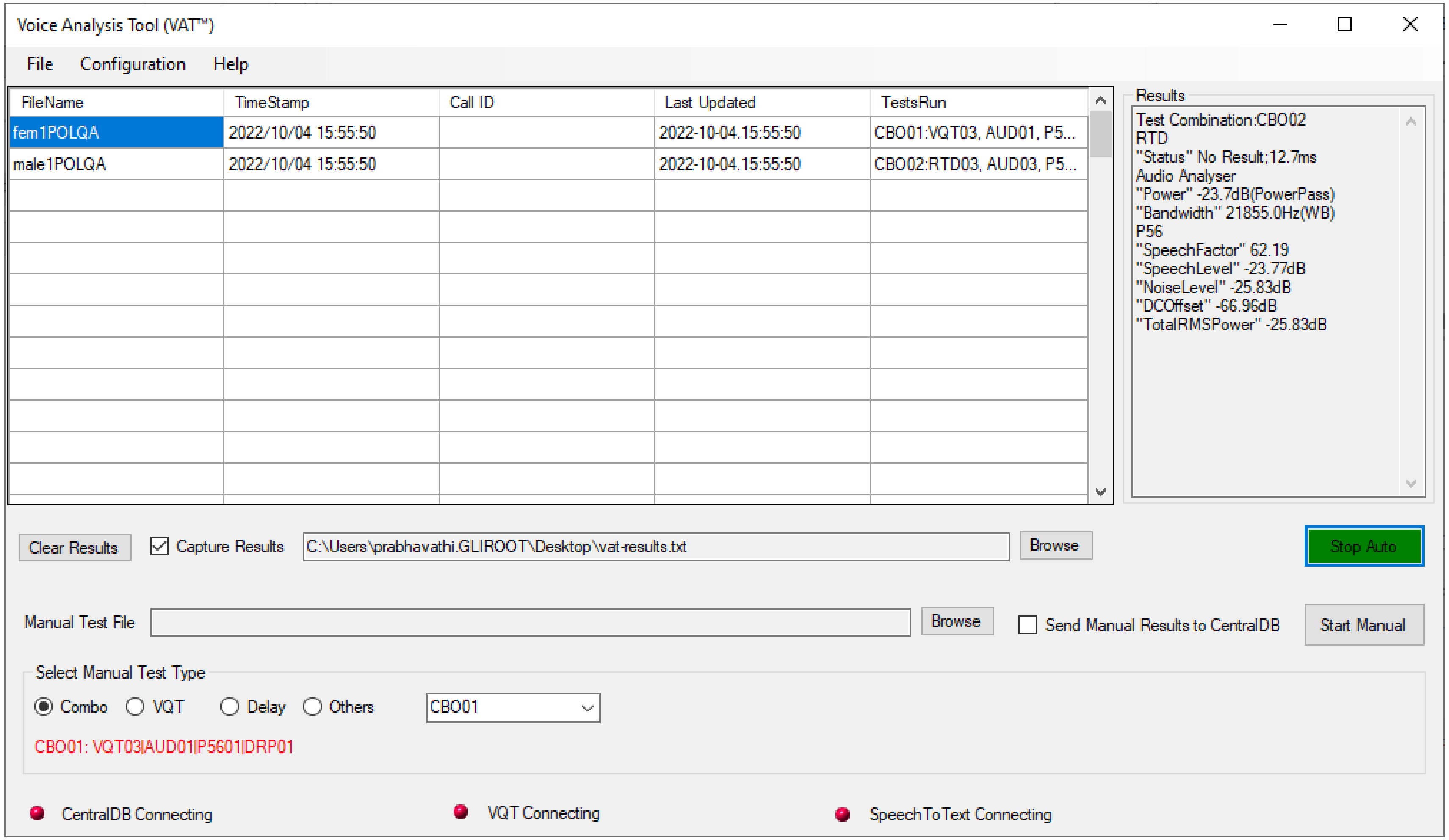

TestConfiguration
RTD Correlation
OWD Correlation
Audio Analyzer
P56
Double Talk 4Wire
Double Talk FXO
DropOut
SpeechToText
VQT
Exit

RTDProfile	File	SamplingRate	CorrelationFactor	PassFactor (msec)	Offset Factor (msec)
RTD01	C:\Program Files (x86)\GL Communications In...	8000	0.5	500	6.4
RTD02	C:\Program Files (x86)\GL Communications In...	16000	0.5	500	3.2
RTD03	C:\Program Files (x86)\GL Communications In...	48000	0.5	500	1

Note: Note: Edit VATProfile.ini available under VAT Installation Directory , Reload INI from File Dropdown to update with changes

VAT™ Results

- All the VAT™ associated results are sent to the GL WebViewer™ central database and can be accessed using the WebViewer™ web browser.
- If the network connection is lost between VAT™ and the database, the data is saved internally. Once the network connection is re-established the data is automatically sent from the VAT™ to the GL WebViewer™ database, so no data is lost.


Voice Analysis Tool (VAT™)
File
Configuration
Help
Results
Clear Results
Browse
Stop Auto
Browse
Start Manual
Select Manual Test Type

FileName	TimeStamp	Call ID	Last Updated	TestsRun
fem1POLQA	2022/10/04 15:55:50		2022-10-04.15:55:50	CBO01:VQT03, AUD01, P5...
male1POLQA	2022/10/04 15:55:50		2022-10-04.15:55:50	CBO02:RTD03, AUD03, P5...

Test Combination:CBO02
RTD
"Status" No Result;12.7ms
Audio Analyser
"Power" -23.7dB(PowerPass)
"Bandwidth" 21855.0Hz(WB)
P56
"SpeechFactor" 62.19
"SpeechLevel" -23.77dB
"NoiseLevel" -25.83dB
"DCOffset" -66.96dB
"TotalRMSPower" -25.83dB

☑ Capture Results C:\Users\prabhavathi.GLIROOT\Desktop\vat-results.txt

Manual Test File

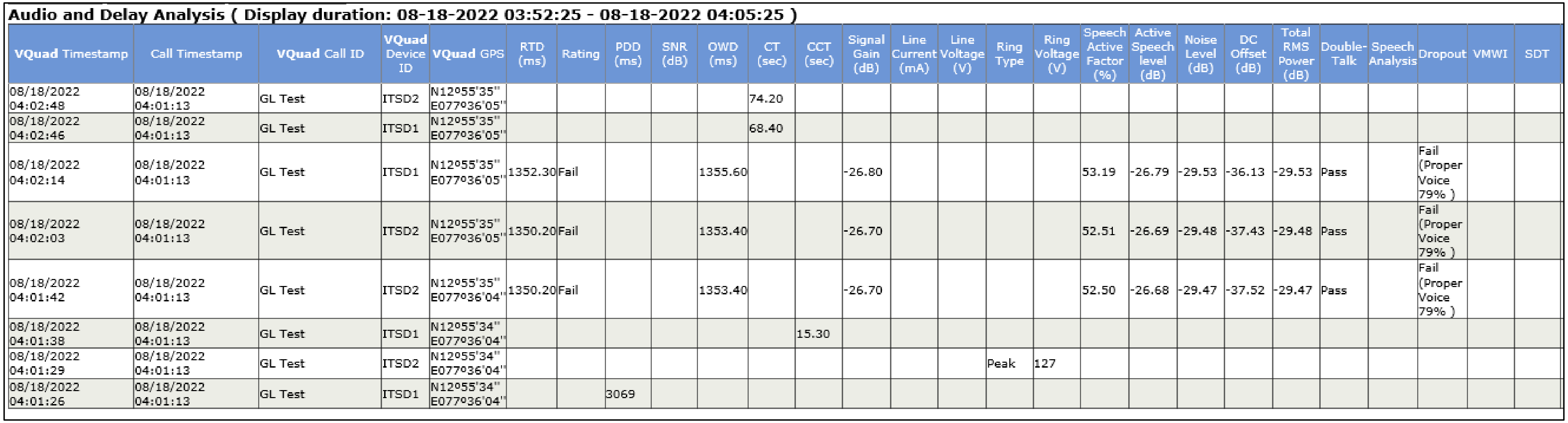
☐ Send Manual Results to CentralDB

● Combo ○ VQT ○ Delay ○ Others CBO01

CBO01: VQT03|AUD01|P5601|DRP01

● CentralDB Connecting ● VQT Connecting ● SpeechToText Connecting

VAT™ Results on WebViewer™ Database



Audio and Delay Analysis (Display duration: 08-18-2022 03:52:25 - 08-18-2022 04:05:25)

VQuad Timestamp	Call Timestamp	VQuad Call ID	VQuad Device ID	VQuad GPS	RTD (ms)	Rating	PDD (ms)	SNR (dB)	OWD (ms)	CT (sec)	CCT (sec)	Signal Gain (dB)	Line Current (mA)	Line Voltage (V)	Ring Type	Ring Voltage (V)	Speech Active Factor (%)	Active Speech level (dB)	Noise Level (dB)	DC Offset (dB)	Total RMS Power (dB)	Double-Talk	Speech Analysis	Dropout	VMWI	SDT
08/18/2022 04:02:48	08/18/2022 04:01:13	GL Test	ITSD2	N12º55'35" E077º36'05"						74.20																
08/18/2022 04:02:46	08/18/2022 04:01:13	GL Test	ITSD1	N12º55'35" E077º36'05"						68.40																
08/18/2022 04:02:14	08/18/2022 04:01:13	GL Test	ITSD1	N12º55'35" E077º36'05"	1352.30	Fail			1355.60			-26.80					53.19	-26.79	-29.53	-36.13	-29.53	Pass		Fail (Proper Voice 79%)		
08/18/2022 04:02:03	08/18/2022 04:01:13	GL Test	ITSD2	N12º55'35" E077º36'05"	1350.20	Fail			1353.40			-26.70					52.51	-26.69	-29.48	-37.43	-29.48	Pass		Fail (Proper Voice 79%)		
08/18/2022 04:01:42	08/18/2022 04:01:13	GL Test	ITSD2	N12º55'35" E077º36'04"	1350.20	Fail			1353.40			-26.70					52.50	-26.68	-29.47	-37.52	-29.47	Pass		Fail (Proper Voice 79%)		
08/18/2022 04:01:38	08/18/2022 04:01:13	GL Test	ITSD1	N12º55'34" E077º36'04"							15.30															
08/18/2022 04:01:29	08/18/2022 04:01:13	GL Test	ITSD2	N12º55'34" E077º36'04"											Peak	127										
08/18/2022 04:01:26	08/18/2022 04:01:13	GL Test	ITSD1	N12º55'34" E077º36'04"			3069																			

Thank you