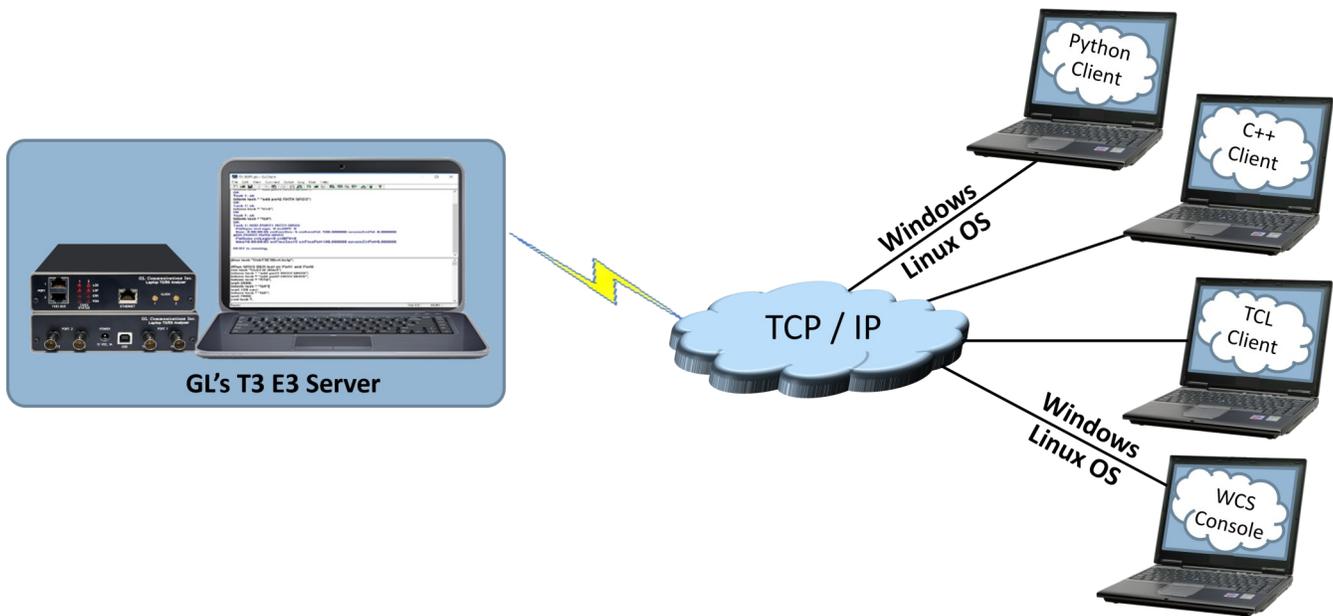# Windows Client/Server Software for T3 E3 Analysis

Overview

GL's Windows Client/Server software is a non-GUI based program for remote, scripted, and automated control of configuration, capture, transmission and more. T3 E3 Cards in a server mode can be easily controlled through software based clients at remote or local sites via TCP/IP sockets, thus allowing multi-site connectivity. Connectivity can be via Dial-Up, LAN, WAN, or more typically the Internet. The server software can run multiple tasks simultaneously at the request of the client software.

Server software runs multiple tasks simultaneously at the request of the client software. Server software runs under Windows® and Linux® operating system. Supports Portable USB T1 E1 Units platform.

Main Features

- Intrusive/Non-Intrusive T3 E3 Testing
- Performance monitoring and testing of multiple site locations from a single client
- Shared use of T3 E3 test equipment from multiple client locations
- Ideal for automated testing on production lines
- Uses the same intelligent parsing and messaging system used by GL's T1 E1 client-server
- GL's T3 E3 Windows Client Server (WCS) application works with Laptop or Desktop PCs
- WCS clients are available for Windows and Linux operating system via console/terminal Command Line Interface and accessible remotely through SSH
- WCS commands can be issued in Python scripts running in Windows or Linux
- Simultaneous testing of high capacity T3 E3 systems through a single client
- Integration of T3 E3 testing into more complex testing systems
- Simple modifiable scripts to run various tests
- Monitor, report, and record alarms locally or remotely
- Wild card and sequential operators available in the command syntax, allows you to configure and control multiple elements of the test set using a fewer lines of commands
- Free client software (with full source code) is available for download
- Custom TCP/IP clients could be developed in any programming language to seamlessly integrate into existing testing program

For more information, refer to T3 E3 Windows Client/Server webpage.

GL Communications Inc.

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GL Server Functions

The T3 E3 client program communicates with the T3 E3 server via TCP/IP-encapsulated commands and responses. The server performs 'actions' and 'tasks'.

- An 'action' is in response to a command' initiated by a client. The server performs the action immediately and notifies the dient of the result
- A 'task' is more complicated, and usually involves real time generation and processing of data. Multiple tasks can be initiated without completion of previous tasks

The server informs the client on tasks: started, status, complete, and so on. Typical tasks are get software version, rx signal settings, loopback settings, alarm monitoring, tx rx framing formats, FEAC messages, line level and signal frequency and others.
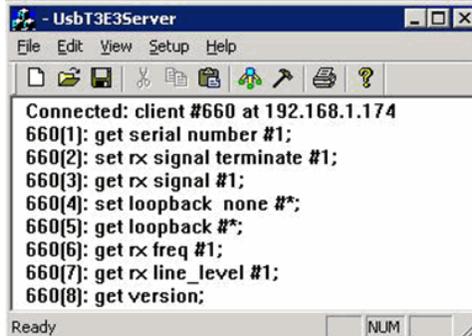
Figure: USB T3E3 Server

GL Client Functions

GL's client is distributed freely with server. Both commands and tasks are high-level functions which include Rx signal settings, loopback settings, alarm monitoring, transmit receive framing formats, and so on

- A client can initiate multiple tasks simultaneously or sequentially (queue up tasks in succession)
- All exchanges between the client and server are displayed and can be logged to a file for later viewing
- All commands are simple and self-explanatory
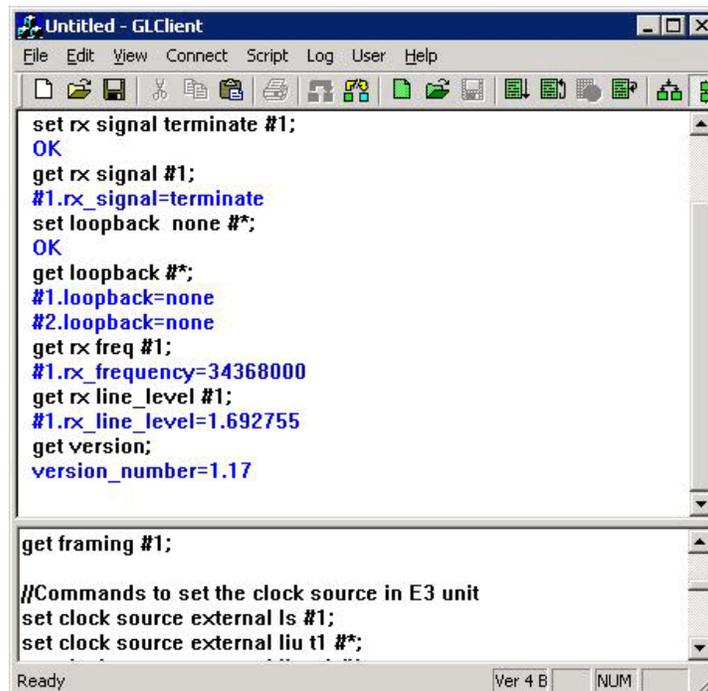- Values returned from the server can be easily accessed and stored as user-defined variables

Figure: GL Client

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Window/Linux Client

Windows/Linux Client (WLC) is a Command Line Interface (CLI) application that issues commands to T3 E3 WCS server and display replies into Console/PowerShell/Terminal Windows. WLC works in Windows and Linux versions. However, through SSH or another remote access terminal it can be used on any operating system. WLC is a portable Windows/Linux WCS client communication library compatible with WCS server.

WLC has two groups of commands:

- **WLC commands:** Display WLC command help, connect to WCS Server, disconnect from WCS Server, pass commands to WCS servers and display replies, save, and execute scripts etc.
- **WCS commands:** Controls T3 E3 cards and display responses from the WCS server commands and tasks

Figure: WCS Console

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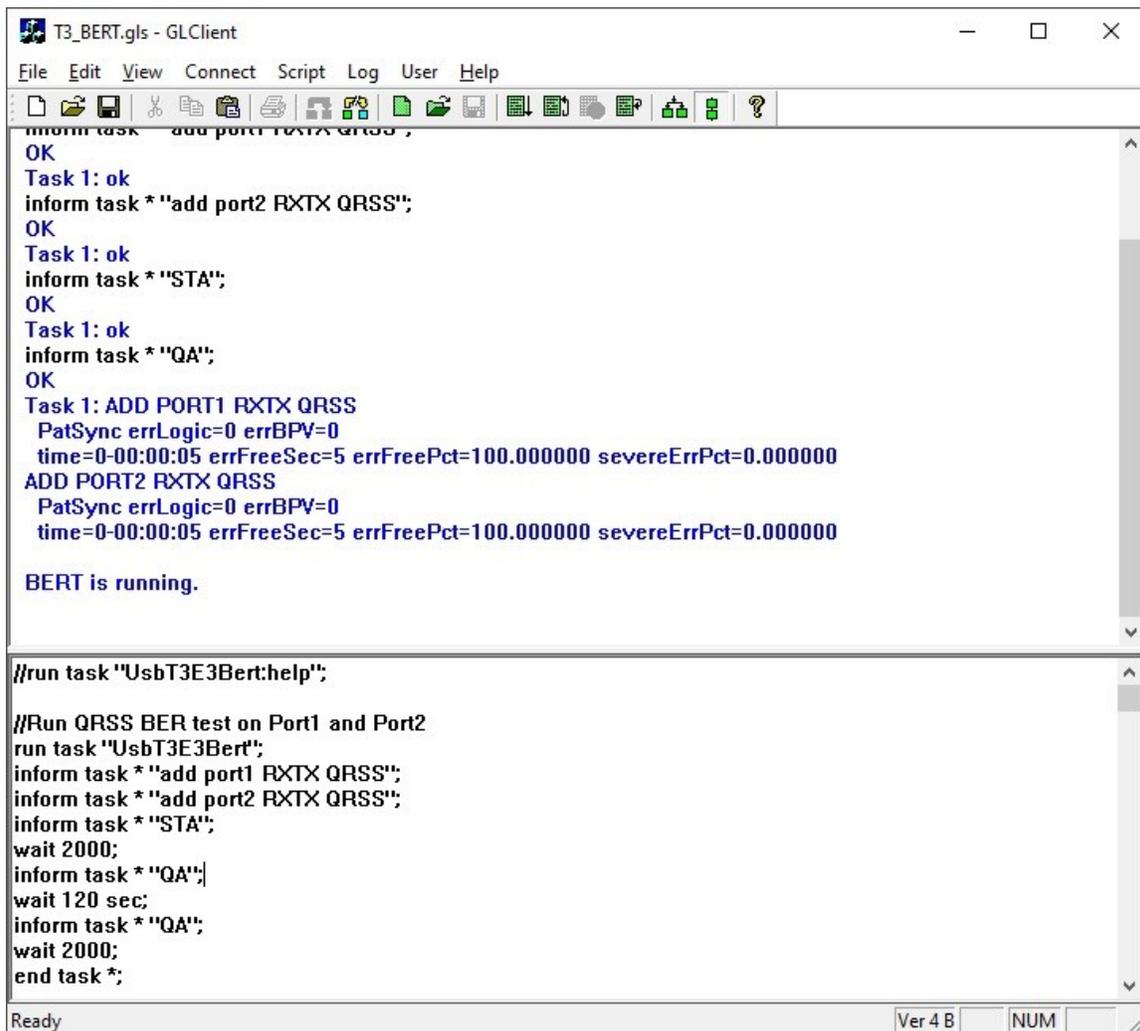# Windows Client Server (WCS) Modules

WCS module TT3600/EE3600 - Bit Error Rate Test

BERT on framed or unframed unchannelized T3 E3 (UsbT3E3Bert) is an optional WCS Server side module that:

- Performs BERT on pseudo random patterns such as QRSS, 2^6-1, 2^9-1, 2^{11}-1, 2^{15}-1, 2^{20}-1, 2^{23}-1, etc.
- Single or continuous Bit Error insertion for Logic and BPV errors
- Provides remote operation, automation, and multi-site connectivity

Sample Script for Bit Error Rate Test:

```
run task "UsbT3E3Bert";
inform task * "add port1 RXTX QRSS";
inform task * "add port2 RXTX QRSS";
inform task * "STA";
inform task * "QA";
```


Figure: USB T3E3 Bit Error Test

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Windows Client Server (WCS) Modules (*Contd.*)

WCS module XX610 - File Transmit & Receive

The Tx/Rx Files on unframed unchannelized T3 E3 (UsbT3E3FileXmit) is an optional WCS module that:

- Transmits data read from files
- Receives data to files
- Provides remote operation, automation, and multi-site connectivity

Sample Script for File and Reception:

```
run task "UsbT3E3FileXmit" using "QEND";
inform task * "rx #2 '\rx.dat' CONT";
inform task * "tx #1 'C:\Program Files\GL Communications Inc\Laptop T3 Analyzer\Sample TxRx
Files\QRSS.BER' cont";
inform task * "start";
end task *;

run task "UsbT3E3FileXmit" using "QEND";
inform task 1 "tx #1 'c:\usb_t3e3.bit' EOF";
inform task 2 "rx #2 'c:\rx.dat' LIMIT 1000000";
inform task 1 "start";
inform task 2 "start";
```
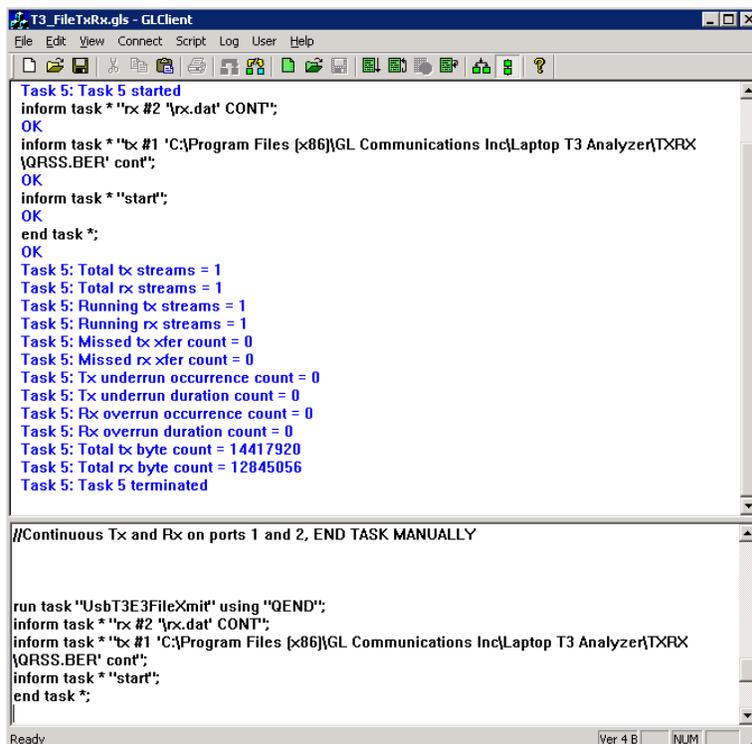

Figure: USB T3E3 File Transmission and Reception

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WCS module XX634 - HDLC Emulation and Analysis

The T3 E3 HDLC Tx/Rx Test (UsbT3E3HdlcTest) is an optional WCS module that:

- Sends HDLC frames with or without impairments
- Receives and verifies HDLC frames and optionally logs the errors
- Provides remote operation, automation, and multi-site connectivity

Sample Script for HDLC Emulation and Analysis :

```
//creates 2 streams on port 1 and 2, sequential numbers of fixed length 8 byte long + 4 byte (crc 32
by default)  each consisting of 12000 frames with 200 flags between frames

// insert some impairment ( corrupt 10 consecutive frames, skipping 9 frames, offs 3 XOR 5 ) on both
the cards.

run task "UsbT3E3HdlcTest:tx";
inform task * "#1,2 SEQNUM FIXLEN 8 FRAMES 12000 FLAGS 200";
inform task * "error rep 10 skip 9 offs 3 xor f5";
inform task * "start";
end task *;
```


Figure: USB T3E3 HDLC Tx / Rx Test

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WCS module XX635 - PPP Emulation and Analysis

The T3 E3 PPP Tx/Rx Test (UsbT3E3HdlcTest) is an optional WCS module that:

- Sends PPP frames with or without impairments
- Receives and verifies PPP frames and optionally logs the errors
- Provides remote operation, automation, and multi-site connectivity

Sample Script for PPP Emulation and Analysis:

```
//Transmit HDL File for a sample PPP trace

run task "UsbT3E3HdlcTest:tx" using "QEND";
run task "UsbT3E3HdlcTest:rx" using "QEND";
inform task  * "#2 EOF FLAGS 1 HDLFILE 'C:\Temp.HDL' ";
inform task  * "#1 EOF FLAGS 1 HDLFILE 'C:\Program Files\GL Communications Inc\Laptop T3
Analyzer\PPP\PPPBridged.HDL' ";
inform task * "start";
end task *;
```
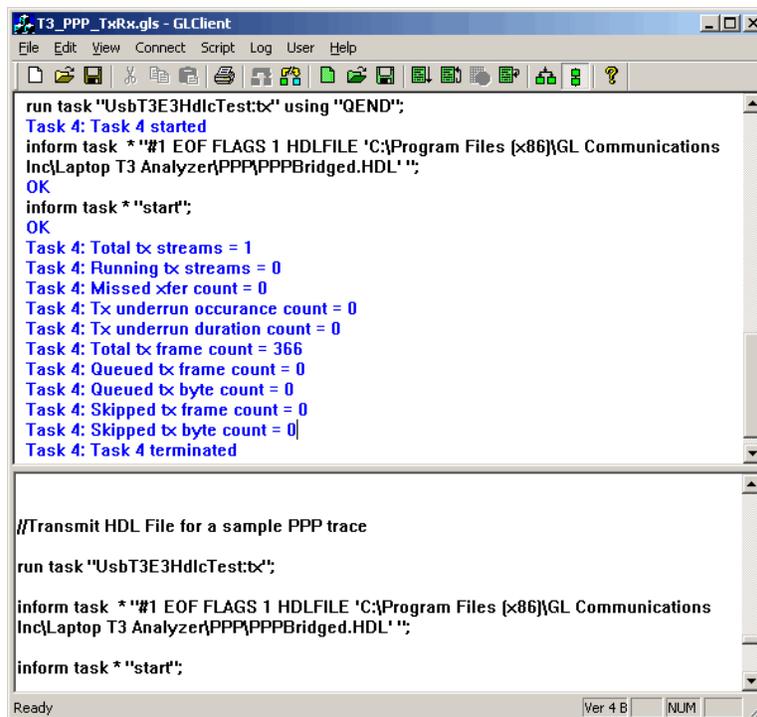

Figure: GL Client

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Buyer's Guide

Item No	Product Description
TT3600/ EE3600	T3 E3 Basic Client Server Scripted Control Software
TT3610/ EE3610	T3 E3 Client Server Tx/Rx File
TT3634/ EE3634	T3 E3 Client Server High Throughput HDLC Tx/Rx Test
TT3635/ EE3635	T3 E3 Client Server High Throughput PPP Tx/Rx Test
SOF617	T3 E3 WCS Client Python Module

For more information, refer to T3 E3 Windows Client/Server webpage.