

# **GBCS Validation Tool (GVT)**

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## **User Guide**



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## Introduction

This guide helps users to know about the basics of the GBCS Validation Tool.

Table below shows the revision history of this user guide.

Version	Date	Description
1.4	January 2019	Updated Figure 3-9, 3-14, 3-16, 3-18, 3-24, 3-25, and 3-32 in Chp. 3 Added License Activation and ITCH Device section in Chp. 3
1.3	August 2018	Updated Connection and Test Case Execution through Command Line sections in Chp. 3
1.2	June 2018	Added Zigbee Packet Sniffer support
1.1	May 2018	Added Watcher section and update Fig 3.3 and 3.12 in Chp. 3
1.0	March 2018	First Publication

## How To Find Information

- The Adobe Acrobat Find feature allows you to search the contents of a PDF file. Use Ctrl + F to open the Find dialog box. Use Shift + Ctrl + N to open to the Go To Page dialog box.
- Bookmarks serve as an additional table of contents.
- Thumbnail icons, which provide miniature preview of each page, provide a link to the pages.
- Numerous links shown in Navy Blue color allow you to jump to related information.



## How to Contact SLS



For the most up-to-date information about SLS products, go to the SLS worldwide website at <http://www.slscorp.com>. For additional information about SLS products, consult the source shown below.

Information Type	E-mail
Product literature services, SLS literature services, Non-technical customer services, Technical support.	<a href="mailto:support@slscorp.com">support@slscorp.com</a>

## Typographic Conventions

The user guide uses the typographic conventions as shown below:

Visual Cue	Meaning
Bold Type with Initial Capital letters	All headings and Sub headings Titles in a document are displayed in bold type with initial capital letters; Example: <b>Introduction, GVT Use-cases.</b>
Bold Type with Italic Letters	All Definitions, Figure and Table Headings are displayed in Italics. Examples: <b><i>Figure 1-1. An Architecture</i></b>
Italic type	Variable names are enclosed in angle brackets (< >) and shown in italic type. Example: <i>GVT.exe &lt;Com Port&gt; &lt;Baud Rate&gt; &lt;TestCase Path&gt;</i>
1., 2. a).	Numbered /Alphabetic steps are used in a list of items, when the sequence of items is important, such as steps listed in procedure.
• ■	Different Bullets (Round/Square) are used in a list of items when the sequence of items is not important.
	The hand points to special information that requires special attention
	The caution sign indicates required information that needs special consideration and understanding and should be read prior to starting or continuing with the procedure or process.

<b>Visual Cue</b>	<b>Meaning</b>
	The feet direct you to more information on a particular topic.
	The note point indicates the information that should be read prior to starting or continuing the procedure or processes.

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## Overview

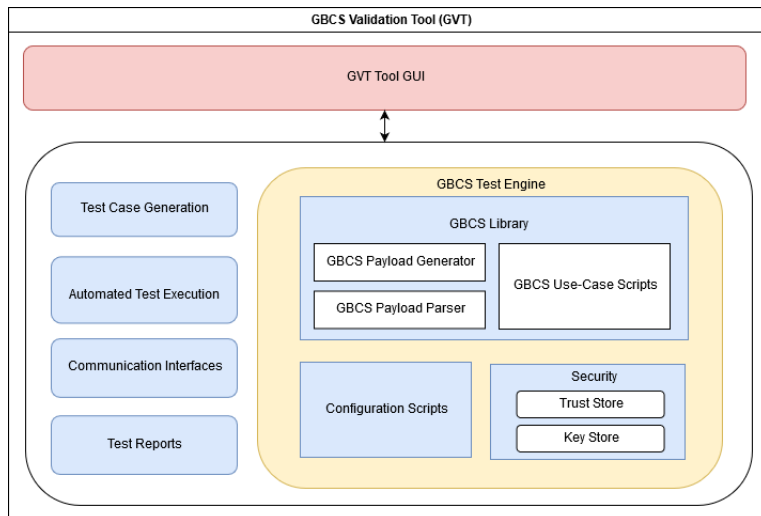
GBCS Validation Tool (GVT) is an application, which is designed to validate Great Britain Companion Specification (GBCS) for any Smart Meter Devices.

GVT can be applicable for all the smart meter devices like GSME, ESME, HCALCS or PPMID. Device manufacturers can send and receive GBCS messages to identify any potential differences with their device specifications compared to GBCS.

GVT also emulates Remote Parties such as Energy Suppliers along with ACB. It validates CHF as well as Metering Devices conformance with standard protocols.

## High Level Architecture

**Figure 1-1. High Level Architecture**



GVT has following major components:

### **GVT Tool GUI**

GVT Tool has simple design and interactive GUI. It is useful to set-up configuration of devices and its test-cases. It can generate a set of GBCS messages with customized input values and can save those sets for reuse. It also allows to configure Remote Party and Device Under Test (DUT) credentials. At the end of the test, it will display the results of all test-cases executed.

### **GBCS Library**

GBCS library is a high-performance component that supports parameter based payload generation for GBCS messages. Along with that, it supports parsing of GBCS compliant responses received from participating devices.

It includes security credentials of Remote Parties and participating devices. It is useful for them to sign the payloads and to verify encrypted/secured responses received from devices. It supports both: Critical and Non-critical messages as per the GBCS requirement.

### **Communication Interface Module**

GVT supports different interfaces, which are Serial, TCP and UDP communication. These are useful to communicate with different devices like, CHF and Smart meters.

### **Test Report Generation**

A comprehensive Test Report is generated upon completion of Test execution. It covers all the necessary information for testing evidence. Along with that, it includes all the logs (messages/commands exchanged between DUT) in mannered format with PASS/FAIL information.



Reports will be generated in well-structured HTML format, which can also be shared as Test evidence.



GVT is useful with various combinations of Smart Metering devices. It has capability to serve various groups of Smart Metering Implementation Programme for verification of their respective device's GBCS implementation.

GVT is applicable for following groups of users:

- **Energy Suppliers:** They can test end to end scenarios and use TCH or ITCH.
- **Device Manufacturers:** They can use serial/TCP/UDP connection scenario to send GBCS messages to their devices and to validate its responses.
- **DCC:**
  - To test virtually in SIT/UIT and to gather evidence, they can use TCH or ITCH.
  - To generate test scenarios in the DCC Device Test Events (DCC interop testing events)
  - For “production proving”, where real Production Communications Hubs are required to be tested in a limited scenario to show that the Communications Hubs which come off the Production Line are good quality and working as expected.
- **Industry Test Schemes**

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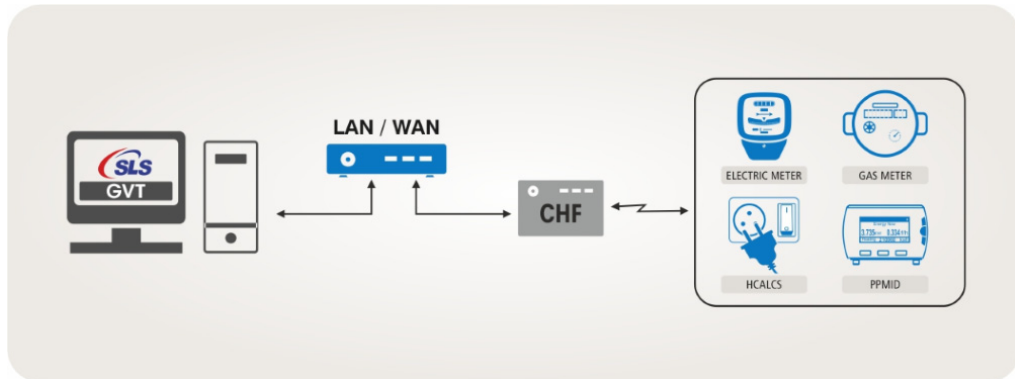
Here are some of the combinations which will serve various parties involved in SMIP testing:

**a) GVT communicating with CHF through LAN/WAN or Serial Communication**

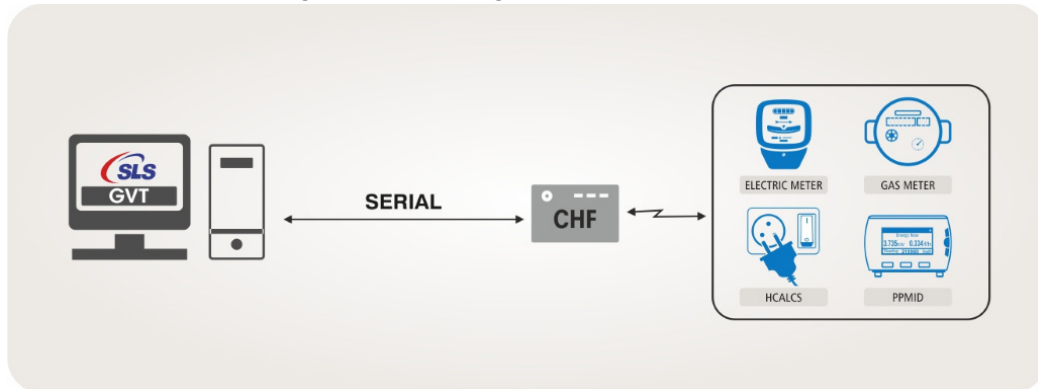
- This combination can help Energy Suppliers to perform end to end test scenarios without the need of DSP. Whereas, they can use TCH or ITCH.
- Under this option, GVT can be used to send commands to CHF and CHF which is joined with Metering devices on HAN will forward those messages to respective end devices.
- End devices generate appropriate responses & alerts and it will send back to CHF which are then received back by GVT. GVT will validate them against expected responses as per GBCS specifications and it will produce comprehensive Test Report. See [Figure 2-1.](#) & [Figure 2-2.](#)

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**Figure 2-1. GVT Communicating with CHF through LAN/WAN**



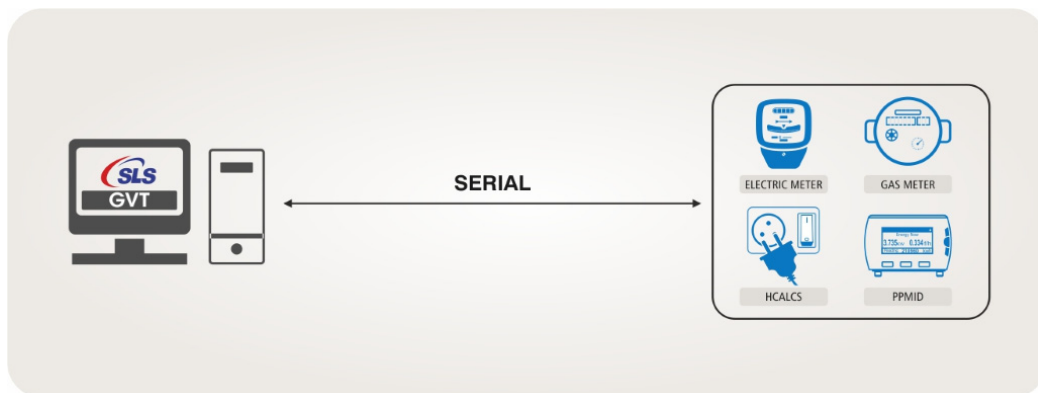
**Figure 2-2. GVT Communicating with CHF through Serial Communication**



**b) GVT Communicating with Metering Devices through Serial Communication**

- Metering Device manufacturers can use this option to validate their implementation of GBCS during their development phase, without need of setting up complete test environment with CHF and ACB. See [Figure 2-3](#).

**Figure 2-3. GVT Communicating with Metering Devices through Serial Communication**



### System Requirements

User must have the following minimum system requirements to successfully run GVT:

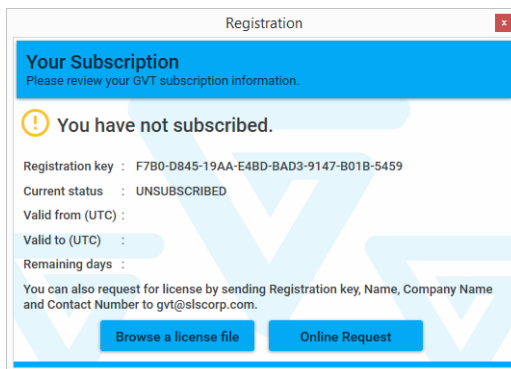
- **Operating System:** Windows 7 or above
- **RAM:** 2 GB or higher recommended
- **.NET Framework:** .NET Framework Version 4.5

### License Activation

To use the GVT tool, user needs to activate the license. On startup the application, Registration window appear as shown in [Figure 3-1](#). There are two methods to activate the license.

- Online
- Offline

**Figure 3-1. Registration**



### Online License Activation

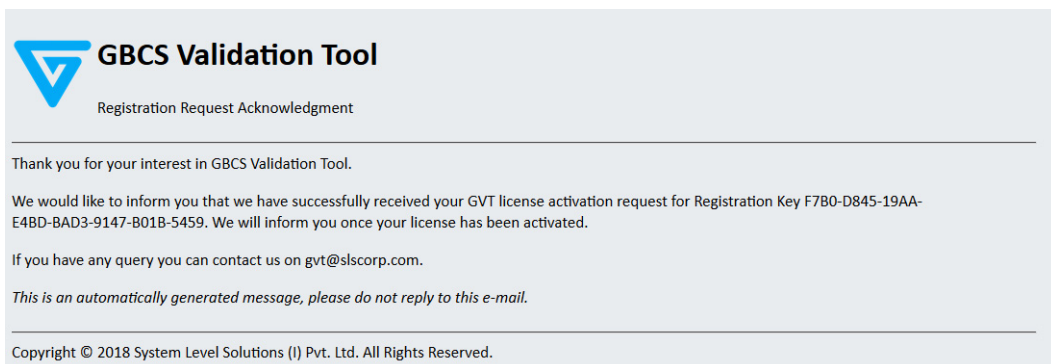
The online license activation allows user to activate the license online using internet connectivity. To activate online, click on **Online Request**.

It displays an “Online Registration Request” window as shown in [Figure 3-2](#).

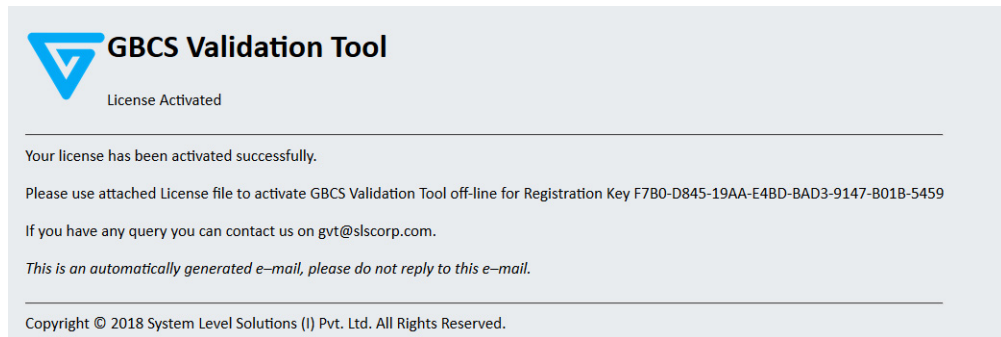
**Figure 3-2. Online Request**

Fill out the requested details and click on **Request** to submit.

The status bar displays the SLS license server connection status. The green color indicates online and red color indicates offline. After submitting the details, an acknowledgement e-mail sent on the registered e-mail ID. See [Figure 3-3](#).

**Figure 3-3. Acknowledgement E-Mail**

On successful registration, an activation e-mail with license file sent to the registered e-mail ID. See [Figure 3-4](#).

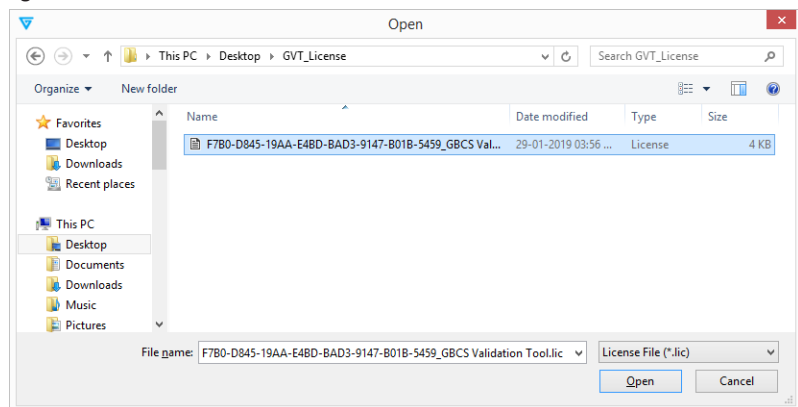
**Figure 3-4. Activation E-Mail**

The license is activated online, now open the application to get started.

## Offline License Activation

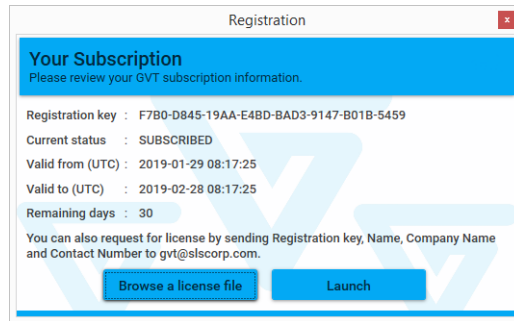
For offline license activation, drop an e-mail at [gvt@slscorp.com](mailto:gvt@slscorp.com) with registration key, name, company name, e-mail ID and contact number. On successful receipt of the e-mail, an acknowledgement and activation e-mail sent to the mentioned e-mail ID. Save the license file provided with activation e-mail.

Click on **Browse a license file**. It will open file browser as shown in [Figure 3-6](#).

**Figure 3-5. Offline Activation - Browse a License File**

Select the license file and click **Open** to close the window. On successful activation, it displays the information as per the license file. See [Figure 3-6](#).

**Figure 3-6. Launch the Application**

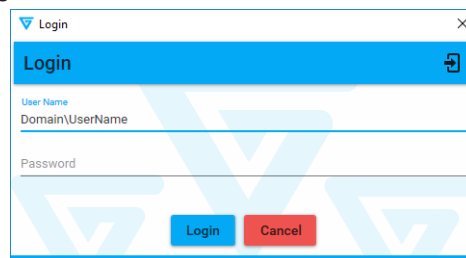


Click on **Launch** to get started with the application.

## Login

To login into an application, user needs to provide his/her System User-name & Password (Windows Credentials).

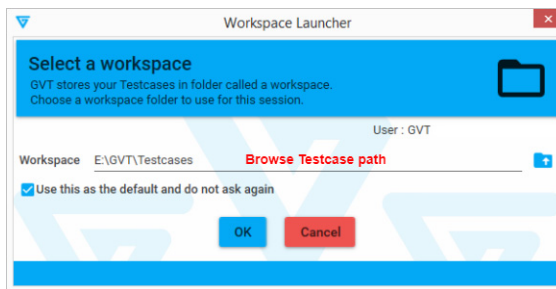
**Figure 3-7. Login**



## Workspace Selection

After successful login, user needs to select a workspace path to store all test cases and generated results. See [Figure 3-8](#).

Figure 3-8. Workspace Launcher



# Workspace

The GVT Tool window is shown in Figure 3-9. The main window gives an understanding about GVT Test environment which is used to setup Test Configurations and to perform different test-cases.

Figure 3-9. GVT Tool Window

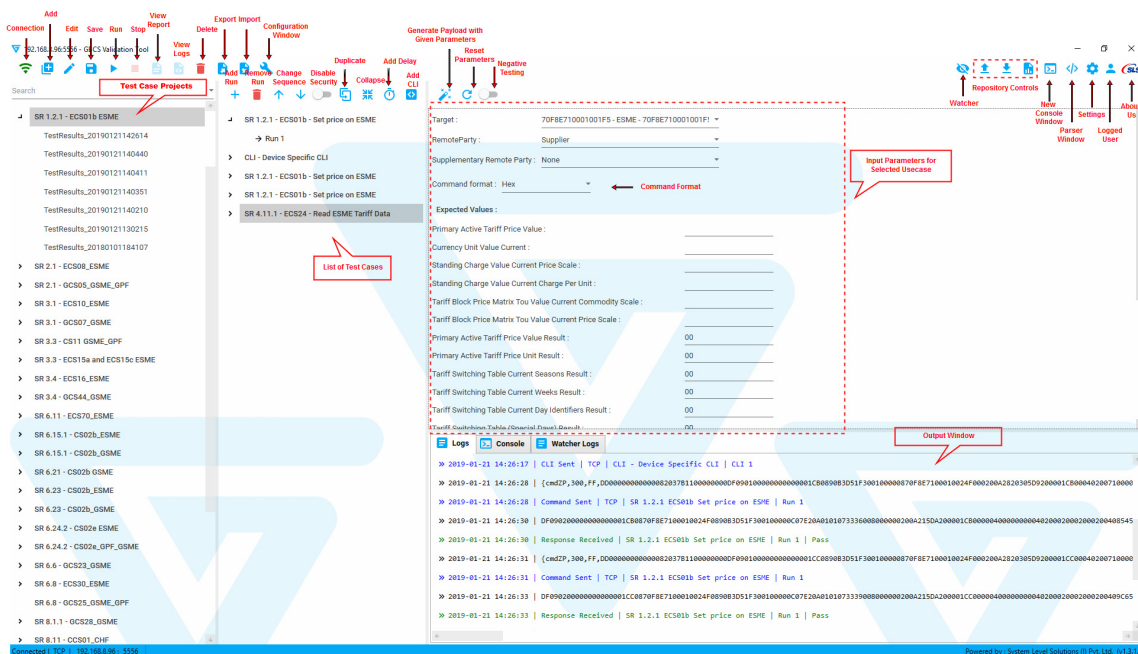





































Table 3-1 provides the quick information about all the available tools.

<b>Table 3-1. GVT Tool Bar Details</b>					
<b>Button</b>	<b>Shortcuts</b>	<b>Description</b>	<b>Button</b>	<b>Shortcuts</b>	<b>Description</b>
	F1	To connect devices		-	To view reports
	Ctrl + N	To create new test case		-	To view logs
	Ctrl + E	To edit test case		Delete	To delete test case
	Ctrl + S	To save test case		Ctrl + Shift + E	To export test case
	F5	To run test case		Ctrl + Shift + I	To import test case
	-	To stop any test case from execution		Ctrl + P	For Configuration
	-	To capture alerts continuously		Ctrl + Shift + P	Response/Alert Parser
	-	Upload to repository		-	Settings
	-	Test case repository		-	View user's details
	-	Test results repository		-	About SLS & Registration
	Ctrl + Shift + C	For new console			
<b>Use-case Tool Bar</b>					

**Table 3-1. GVT Tool Bar Details**

Button	Shortcuts	Description	Button	Shortcuts	Description
	-	Add new run		-	To collapse
	Delete	Delete run		-	Add delay
	F9	Up		-	Add CLI
	F10	Down		Ctrl+F5	Generate command
	Ctrl + Shift + D	Disable security (Middle Pane)		-	Clear parameters
	Alt + Shift + D	Duplicate run/test case		-	Negative test (Right Pane)

## Setting up the GVT








Before generating any test case, user needs to configure GVT for particular test along with the details like Devices, Remote Parties, Preamble configuration and Supplementary Remote Parties information.

For configuration, click on  button available at Tool bar as shown in Figure 3-9.

Detailed descriptions are as follows.

- [Device Configuration](#)
- [Remote Party Configuration](#)
- [Preamble Configuration](#)
- [Supplementary Remote Party Configuration](#)

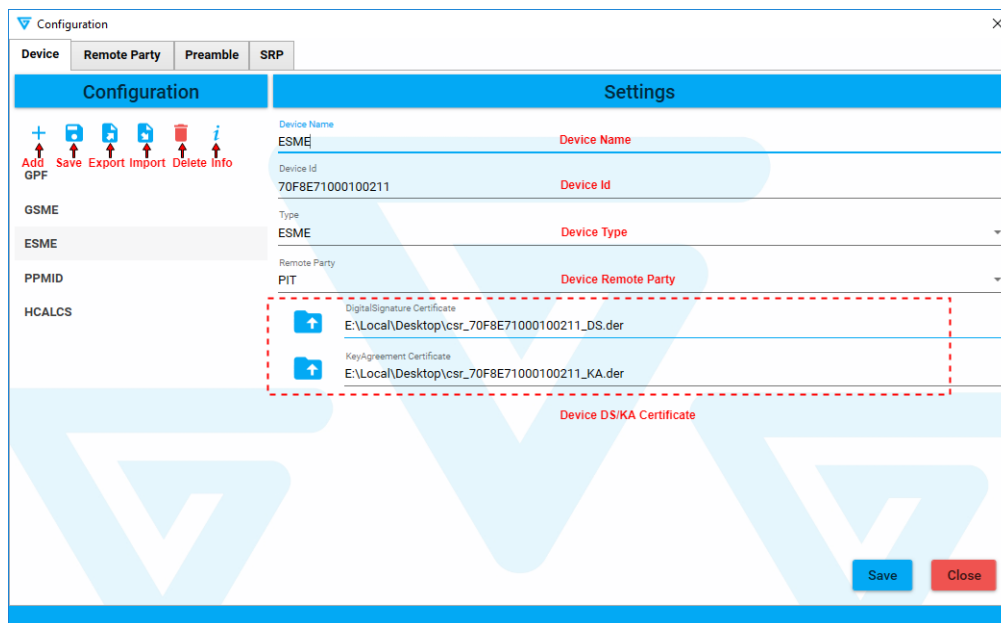
**Table 3-2. Configuration Tool Bar Details**

Button	Shortcuts	Description	Button	Shortcuts	Description
	Ctrl + N	Add Device configuration		Ctrl + S	To save
	-	To export configuration		-	To import configuration
	Delete	To remove configuration		Ctrl + i	Additional information
	Ctrl + D	Set default configuration	-	-	-

## Device Configuration

User can Add, Delete, Import or Export device configuration. Along with that, user needs to provide device GUID, Type and Device Certificates. In which, device certificates will be useful for security of Critical/Non Critical commands. See Figure 3-10. Also, refer Table 3-2 for detailed tool information.

Figure 3-10. Configuration



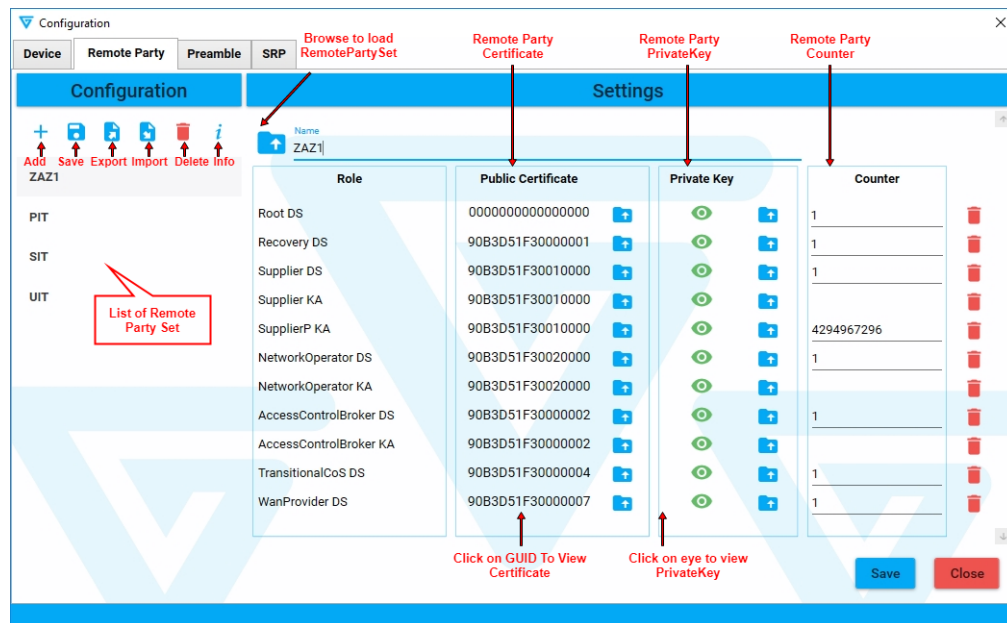
## Remote Party Configuration

User can Add, Delete, Import or Export different sets of Organizations. Along with that, user needs to configure Organization certificates, Keys and Counter values for each Remote Party to perform test with different environments like PIT, SIT, OCA, etc. See [Figure 3-11](#). Also, refer [Table 3-2](#).

Click on the Public Certificate GUID, to view more information about certificates.

Click on the  button, to view Private Key.

**Figure 3-11. Remote Party Configuration**



Instruction to load Remote Party Set:

- Keep all the Remote Party DS/KA Certificates and Private Keys in the 'Remote Party Set' folder.
- Avoid/remove “**Supplier Prepayment KA**” Certificate and Private Key from the folder.

- Do not keep multiple copies of Remote Party DS/KA Certificates and Private Keys in the folder.
- Now, click on the browse folder button to load Remote Party Set into configuration.

## Preamble Configuration

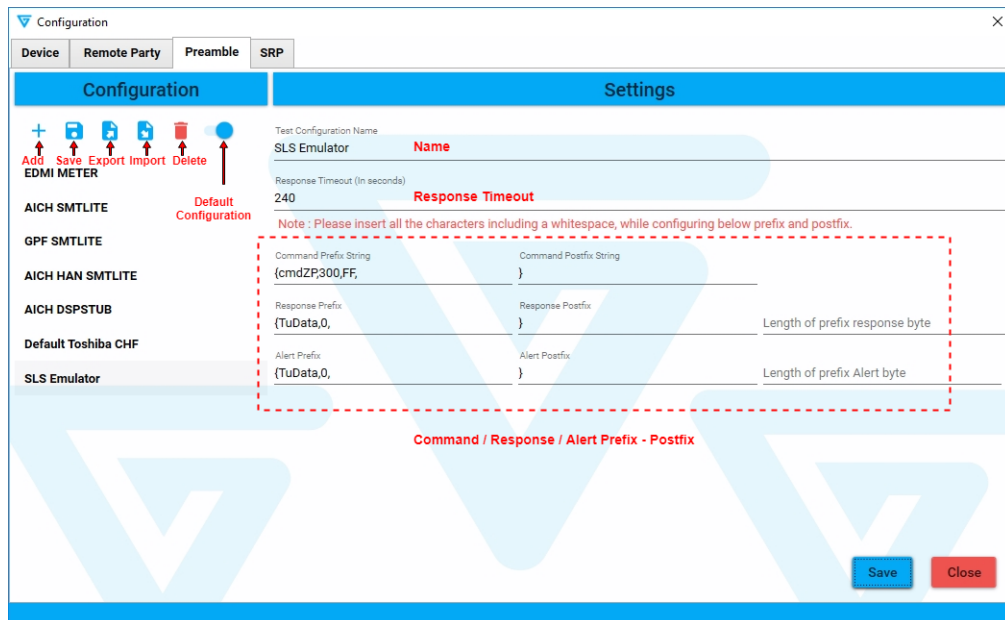
User can Add, Delete, Import or Export device Preamble Configuration. Along with that, user can configure device specific Command, Response or Alert Prefix/Postfix for different devices. It will automatically append for send command to a particular device, and in the same way user will receive the Response/Alert payload. See [Figure 3-12](#). Refer [Table 3-2](#) .

To set Preamble Configuration as Default, click on the  button.



Response Timeout will execute next command, if selected device won't response in mentioned time-duration. Also, if user do not set Response Timeout, GVT will wait for the response infinite time duration. In that case, user can stop execution, manually.

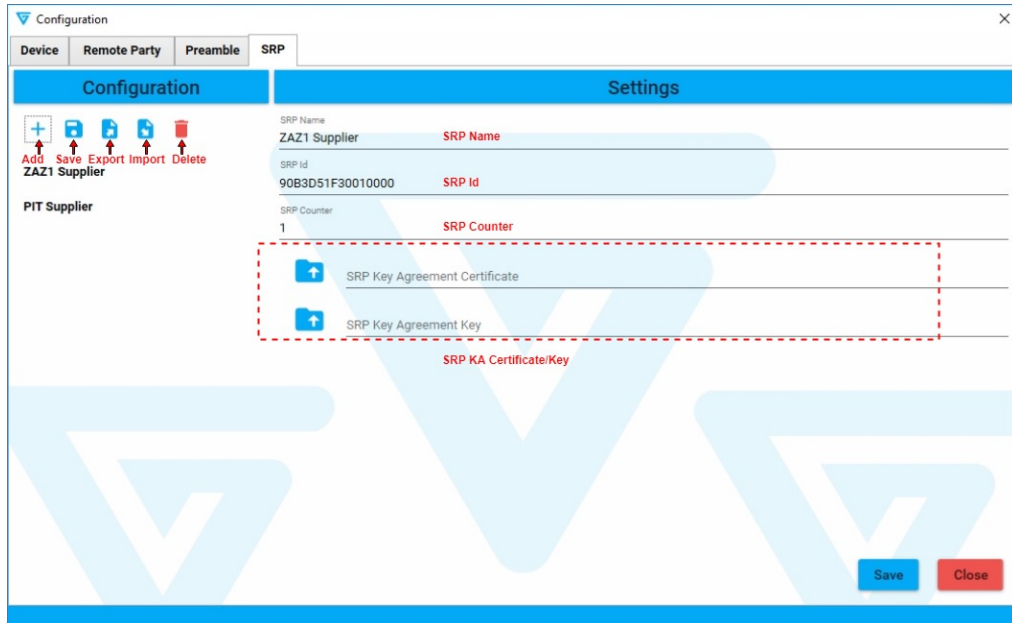
**Figure 3-12.Preamble Configuration**




## Supplementary Remote Party Configuration

User can Add, Delete, Import, Export and set device SRP Configuration, which is useful for SRP supported Use-cases. See [Figure 3-13](#). Also, refer [Table 3-2](#).


**Figure 3-13. Supplementary Remote Party Configuration**



## Test Case Generation

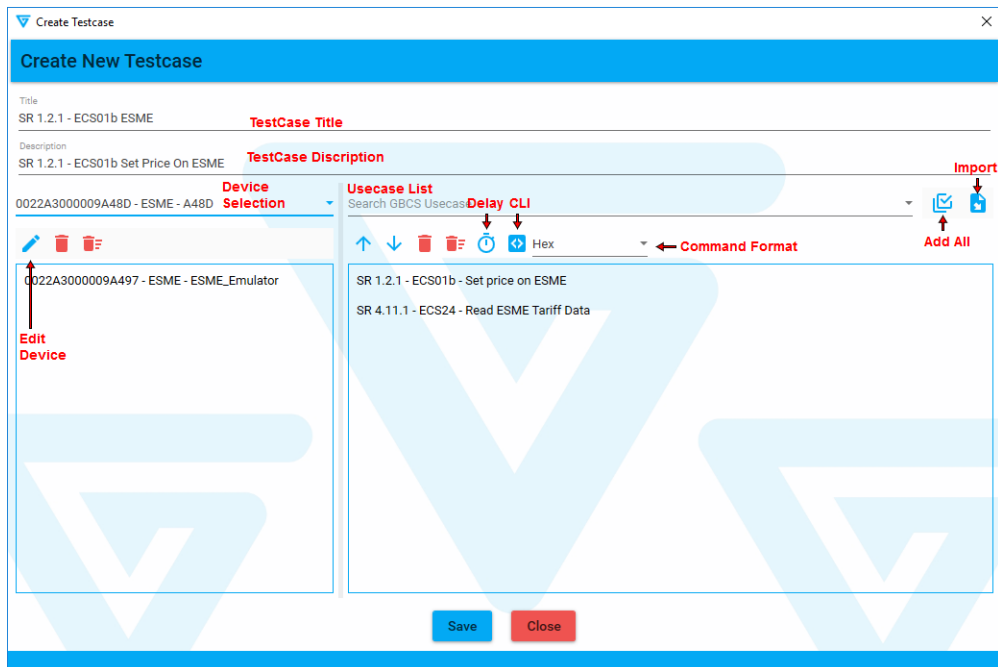
To generate a new test case, click on the  button available at GVT Tool Bar as shown in [Figure 3-9](#). Also, refer [Table 3-1](#) for detailed tool information.

It will bring you the window as shown in [Figure 3-14](#).

- In Create New Test case, user needs to provide Title and Description (if any) of particular Test case.
- After that, user needs to select a particular Device (from configured devices).
- Based on selected device, user can select the use-case/s to perform the test. Also, user can select multiple devices from configured devices.
- Click on the  button, to import use-cases.
- User can add DELAY and manufacturer specific CLI along with Use-cases.
- User can edit or delete selected devices with available options shown in [Figure 3-14](#). Also, user can delete particular use-case.
- User can also change the use-cases sequences by clicking on Up/Down button available at Tool bar. See [Figure 3-14](#).

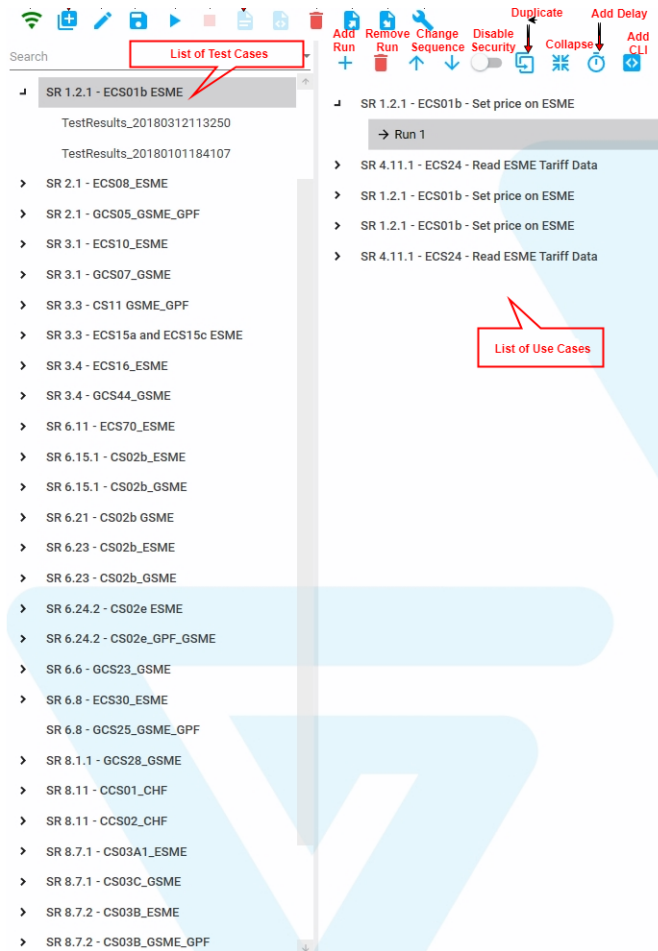



**Figure 3-14. Create Test Case**



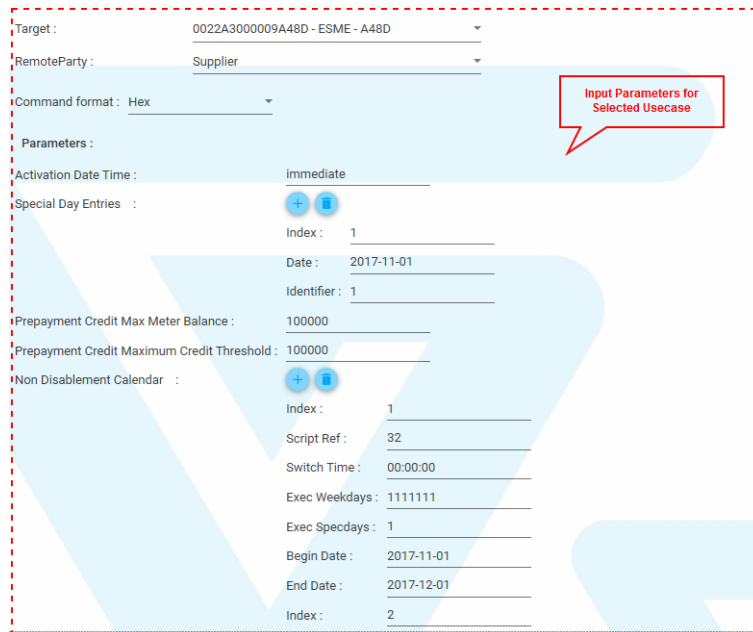
- By clicking on the Save button, a new test case will be created and will display on the Left Panel as shown in [Figure 3-15](#).
- Selection of particular test case will display associated Use Cases in the middle panel. See [Figure 3-15](#). Also, refer [Table 3-1](#) .

Figure 3-15. Test-Case Window



- Upon selecting particular use-case, configurable fields (if any) will display at the right panel. User can edit the use-case as per the test requirements. See [Figure 3-16](#).
- To validate Response with expected values, user can set Expected Values for different fields. See [Figure 3-16](#).
- Click on the  button, to generate command payload, manually.

**Figure 3-16. Use-case/Input Parameter Window**





Target : 0022A3000009A48D - ESME - A48D

RemoteParty : Supplier

Command format : Hex

Parameters :

Activation Date Time : Immediate

Special Day Entries :  



Index : 1

Date : 2017-11-01

Identifier : 1

Prepayment Credit Max Meter Balance : 100000

Prepayment Credit Maximum Credit Threshold : 100000

Non Disablement Calendar :  

Index : 1

Script Ref : 32

Switch Time : 00:00:00

Exec Weekdays : 1111111

Exec Specdays : 1

Begin Date : 2017-11-01

End Date : 2017-12-01

Index : 2

Input Parameters for Selected Usecase

## Connection

To connect CHF/Meter, user needs to select a particular interface. In which, user can choose any of the available communication medium, i.e. TCP, UDP or Serial. See Figure 3-17.

If device have different serial connection to receive response then user can also connect that serial connection by check in “Has Different Receiver Port” checkbox.

At the same time user can also connect zigbee sniffer dongle.

User can also view Recent Connections and can directly connect to any of them by double clicking on it.

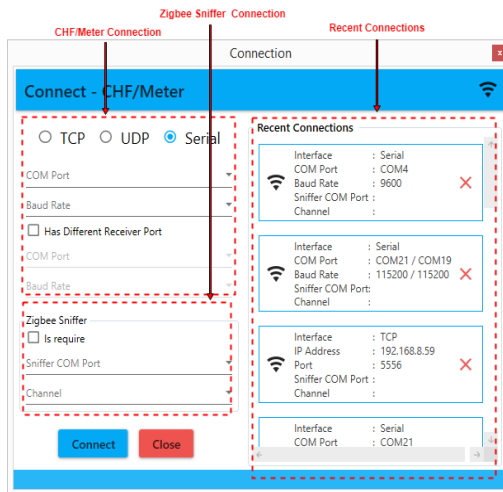


GVT has been tested to support zigbee sniffer dongle with NXP JN51xx Module. For dongle related queries, please contact [gvt@slscorp.com](mailto:gvt@slscorp.com).



- For TCP & UDP connection, user needs to provide IP address and Port.
- Whereas for Serial connection, user needs to provide COM Port and Baud Rate.
- For zigbee connection, user needs to provide COM Port and Channel.

**Figure 3-17. Connection**



## Test Case Execution

Upon successful connection, a workspace window will display as shown in Figure 3-18.

To execute a test case, click on the  button available at tool bar. It will sequentially execute all the associated use-cases.

For individual use-case, payload will be generated as per GBCS using the values, provided by user. Also, Payload will have MAC & Signature security.

This payload will be sent to the connected Device via selected interface.

Device will receive this payload and generate an appropriate Response/Alert to send it back.

GVT will parse received 'Response/Alert Payload' into relevant information and it will validate Response/Alert with GBCS specifications. Along with that, it will also validate an Expected Values, if provided by user.

At the time of executing a test case, GVT will start capturing zigbee packets using connected zigbee dongle until test case ends & saves captured zigbee packets in test results folder using "pcap" file format. This pcap file can be opened and viewed in any available Zigbee Packet analyzer tool which supports .pcap format.

Test-case Output Log will display ongoing commands and response/alert as shown in [Figure 3-18](#).

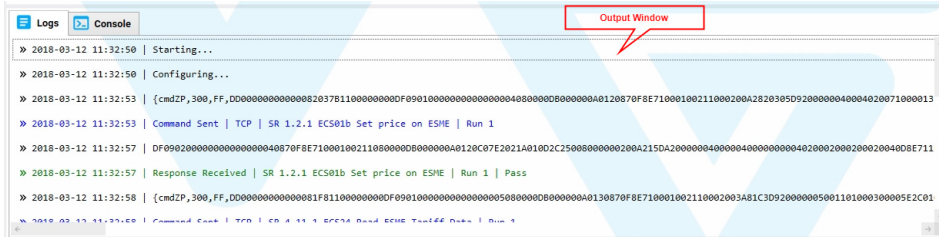
After execution, Reports and Logs will be saved in test-case results and result of individual test-cases will be displayed on the left panel. Also, associated use-cases containing Run status will be displayed on middle panel. If run status is passed then it will be marked with green color else red. See [Figure 3-18](#).



## Log & Console

User can view ongoing test case commands and response/alert at log section as shown in [Figure 3-19](#).

**Figure 3-19. Log Section**

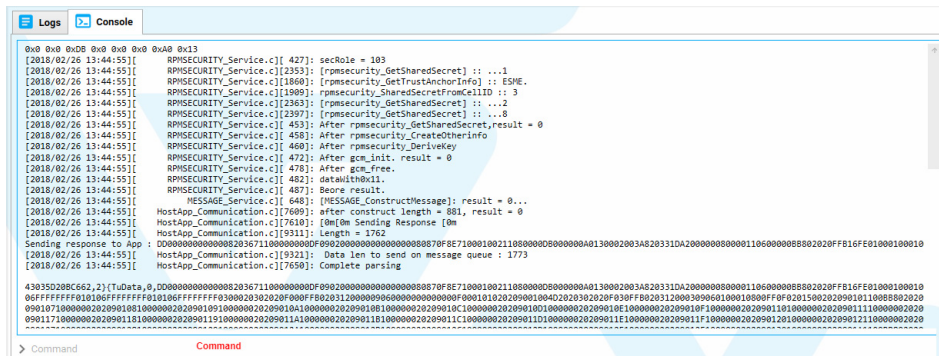


Also, user can view connected device logs at console section as shown in [Figure 3-20](#).



Using command bar, user can send device specific commands to connected device and can view ongoing logs in a Console section.

**Figure 3-20. Console Section**



## Test Case Execution through Command Line

To execute Testcase from the command line following CLI commands should be followed.



Following CLI commands need to be followed during CLI execution.

Open Command Prompt from path where GVT.exe exists.

### ■ For Serial Connection

- GVT.exe -p <password> Serial <Com Port> <Baud Rate> [-rc <Com Port> <Baud Rate>] -tc <TestCase Path> [-ds] [-zb <Com Port> <Channel>]
- GVT.exe -p "xyz" Serial COM1 9600 -rc COM9 9600 -tc "D:\GVT\GVT.xml"

### ■ For TCP Connection

- GVT.exe -p <password> TCP <IP Address> <Port> -tc <TestCase Path> [-ds] [-zb <Com Port> <Channel>]
- GVT.exe -p "xyz" TCP 127.0.0.1 5555 -tc "D:\GVT\GVT.xml"

### ■ For UDP Connection

- GVT.exe -p <password> UDP <IP Address> <Port> -tc <TestCase Path> [-ds] [-zb <Com Port> <Channel>]
- GVT.exe -p "xyz" UDP 127.0.0.1 4059 -tc "D:\GVT\GVT.xml"

[ ]: Optional field - do not use bracket

[-ds]: Disable Security

[-zb <Com Port> <Channel>]: Use for zigbee sniffer



**Figure 3-21. Test Case Execution through Command Line**

```

Administrator: Command Prompt
C:\Users>GVT.exe -p "xyz" COM9 9600 "C:\Users\GUIT\TestCases\Testcase.xml"

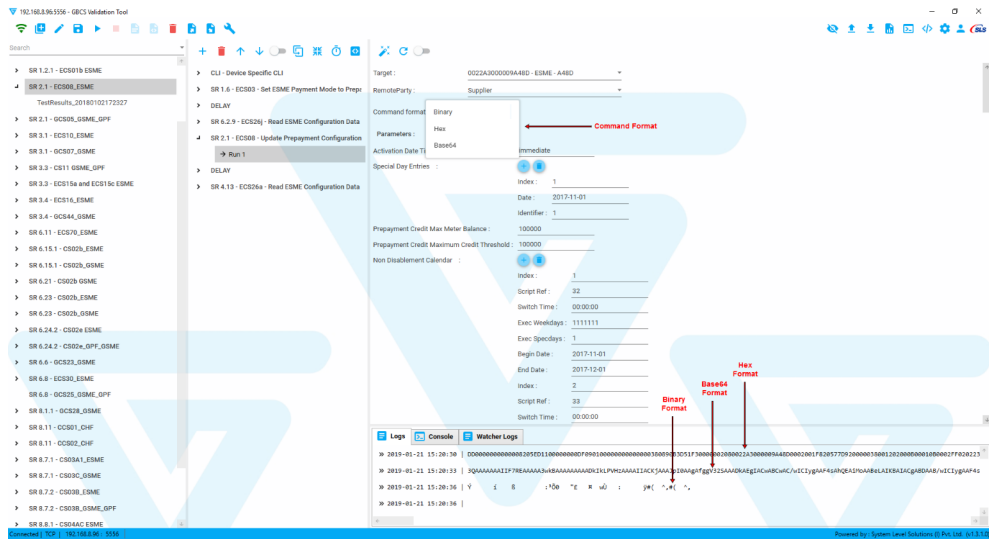
C:\Program Files (x86)\SLS\GVT>Connecting COM9 9600
Starting...
Configuring...
ProcessGBCS DD0000000000047110000000DF090100000000000040890B3D51F30010000001000102030405060002005913D920000040001
010001000000201FF0201000084E42EB42CA369F1DFD5A1C0
Command Sent | Serial | SR 11.2 ECS52 Read ESME/Comms Hub Firmware Version | Run 1
cef8cac1,d9e5524b,Console ,Command : $ProcessGBCS DD0000000000047110000000DF090100000000000040890B3D51F300100000801
000102030405060002005913D9200000040001010001000000201FF0201000084E42EB42CA369F1DFD5A1C0
cef8cac2,dcc78927,MSG ,MessageHandler message addition
cef8cac2,dd76478F,MSG ,Message Handler Task got Message from WAN OR HAN
cef8cac2,de665cab,GBCS ,Processing message.
cef8cac2,df12e57d,GBCS ,Req MsgCode: 0x0059 For UseCase : ECS52 SR: 11.2
cef8cac2,e252b1af,DEBUG ,For device ESME, Role Supplier Originator ID : 0x90b3d51f30010000, Target ID : 0x01000102030
40506, validated for message code 0x0059 - RBAC validation passed.
cef8cac2,e47483af,GBCS ,Verifying MAC for message.

$cef8cac3,e8c8094d,GBCS ,MAC verification passed.
cef8cac3,e9706aab,MSG ,Processing remote party message.content of the message is
cef8cac3,ea7bdc5b,GBCS ,Started processing message.
cef8cac3,eb55684F,GBCS ,Processing dlms message
cef8cac3,ee845a4F,DLMS ,DLMS Process Successful
cef8cac4,f310e96F,DEBUG ,addFutureDatedCommand default. Command is not future dated.
cef8cac4,f41858d5,MSG ,GBCS Response received
cef8cac4,f4cfbeaf,GBCS ,GBCS Resp Msg code : 0x0059
cef8cac4,f5a71795,GBCSRESP,[dd0000000000045110000000df0902000000000000408010001020304050600890b3d51f300100000020059
11da200000040000010904fffff000101000097527bf34f0f7a8bf0d97a90]
  
```

## ITCH Device

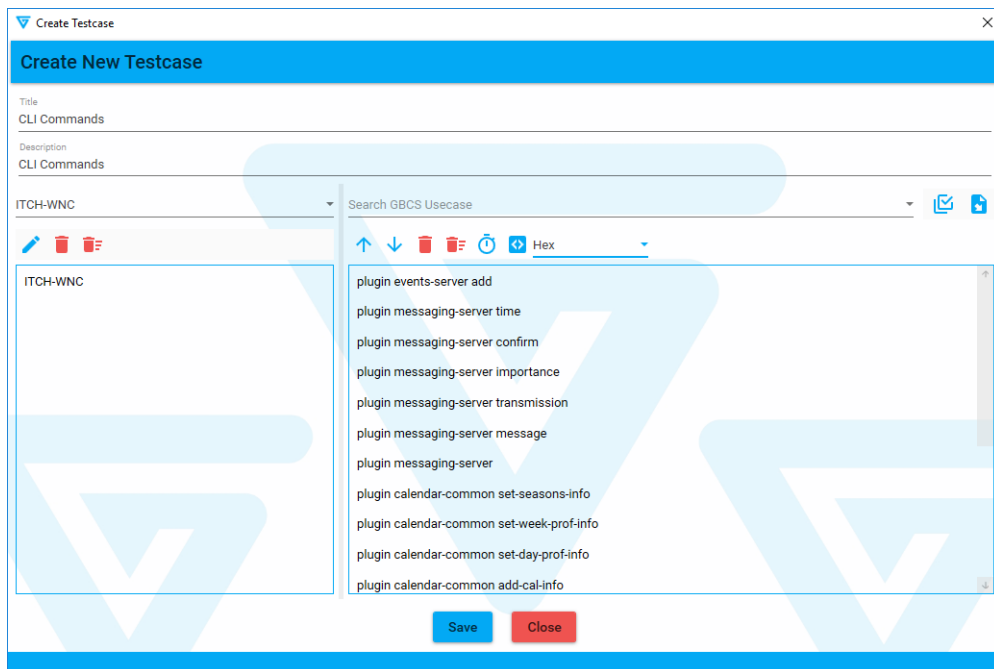
GVT tool has the ability to generate GBCS commands in Hex/Base64/.bin format directly, which can be sent to the ITCH device directly from GVT as per the configuration shown in [Figure 3-22](#).

Figure 3-22. ITCH Device Workspace



GVT receives response from ITCH and automatically convert it into Hex and parse it as per the GBCS template and generate comprehensive test report.

In-built CLI commands are also available as shown in Figure 3-23.

**Figure 3-23. CLI Command Support**

# Test Report

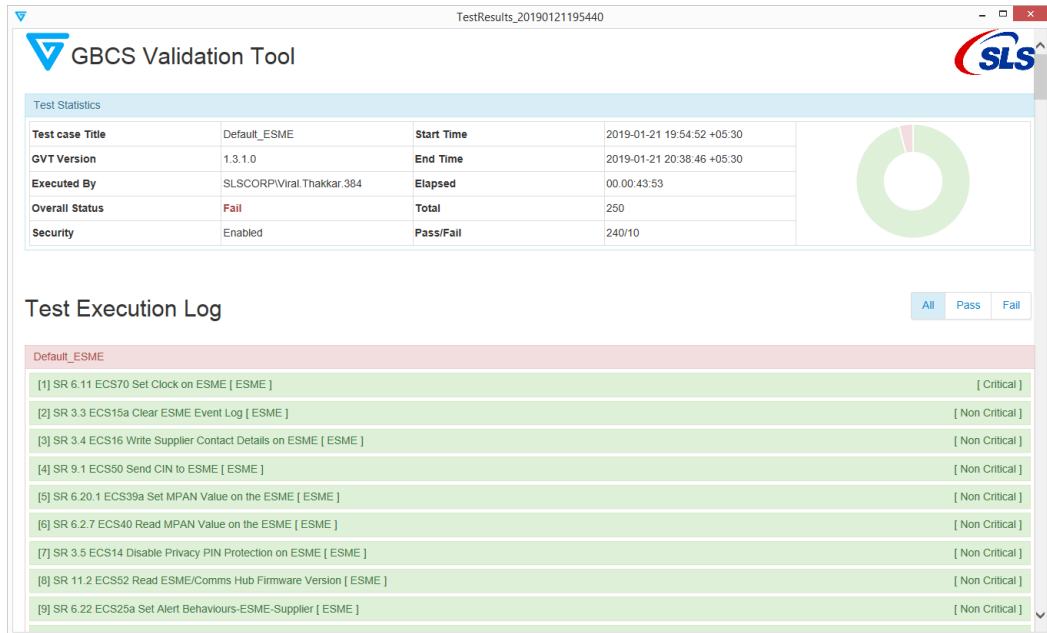
Upon execution of all the test-cases, a comprehensive Test Report will be generated as shown in [Figure 3-24](#).

It has all the details about passed/failed use-cases and it will also provide detailed logs containing Parsed Response received from the Device.



Green/Red row color indicates passed/failed use-case information.

**Figure 3-24. Test Report**




To view particular use-case in detail, click on the individual use-case. It will display the detailed information as shown in [Figure 3-25](#).

It includes Command Payload, Received Response Payload and Response Parsed fields.

**Figure 3-25. Detailed View of Individual Use-cases**

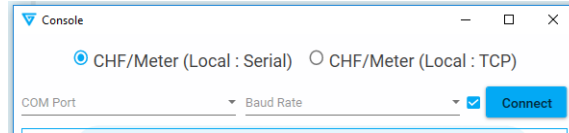
Field	Value																										
MAC Header	DD 00 00 00 00 00 45 11 00 00 00																										
Grouping Header	DF 09 02 00 00 00 00 00 8B 06 70 F8 E7 10 00 10 02 4F 08 90 B3 D5 1F 30 01 00 00 02 00 59 11																										
CRA	2																										
Originator Counter	00 00 00 00 00 00 8B																										
Business Originator ID	70 F8 E7 10 00 10 02 4F																										
Business Target ID	90 B3 D5 1F 30 01 00 00																										
Date	NA																										
Message Code	0059																										
Supplementary Info	NA																										
Length	17																										
Payload	DA 20 00 00 8B 00 00 01 09 04 0A 01 01 02 01 01 00																										
Parsed Parameters	<table border="1"> <thead> <tr> <th>Tag</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Configuration</td> <td>0x20</td> </tr> <tr> <td>Invoke ID</td> <td>0x00008B</td> </tr> <tr> <td>Datetime</td> <td>0x00</td> </tr> <tr> <td>Access Request Specification</td> <td>0x00</td> </tr> <tr> <td>Number Of Entries</td> <td>0x01</td> </tr> <tr> <td>Data Type</td> <td>0x09</td> </tr> <tr> <td>Length</td> <td>0x04</td> </tr> <tr> <td>Firmware Version Value</td> <td>0x0A010102</td> </tr> <tr> <td>Number Of Entries</td> <td>0x01</td> </tr> <tr> <td>Access Response Get</td> <td>0x01</td> </tr> <tr> <td>Firmware Version Result</td> <td>0x00</td> </tr> <tr> <td>Success</td> <td>True</td> </tr> </tbody> </table>	Tag	Value	Configuration	0x20	Invoke ID	0x00008B	Datetime	0x00	Access Request Specification	0x00	Number Of Entries	0x01	Data Type	0x09	Length	0x04	Firmware Version Value	0x0A010102	Number Of Entries	0x01	Access Response Get	0x01	Firmware Version Result	0x00	Success	True
Tag	Value																										
Configuration	0x20																										
Invoke ID	0x00008B																										
Datetime	0x00																										
Access Request Specification	0x00																										
Number Of Entries	0x01																										
Data Type	0x09																										
Length	0x04																										
Firmware Version Value	0x0A010102																										
Number Of Entries	0x01																										
Access Response Get	0x01																										
Firmware Version Result	0x00																										
Success	True																										
MAC	94 FA 21 D8 E1 DA 96 B3 8D F6 6A A0																										

# Console Window

To capture Logs from any device which is under test, click on the  button. It will display a window as shown in [Figure 3-26](#).

To connect a device, user needs to provide TCP/Serial interface information.

**Figure 3-26. Connect Device with Console**

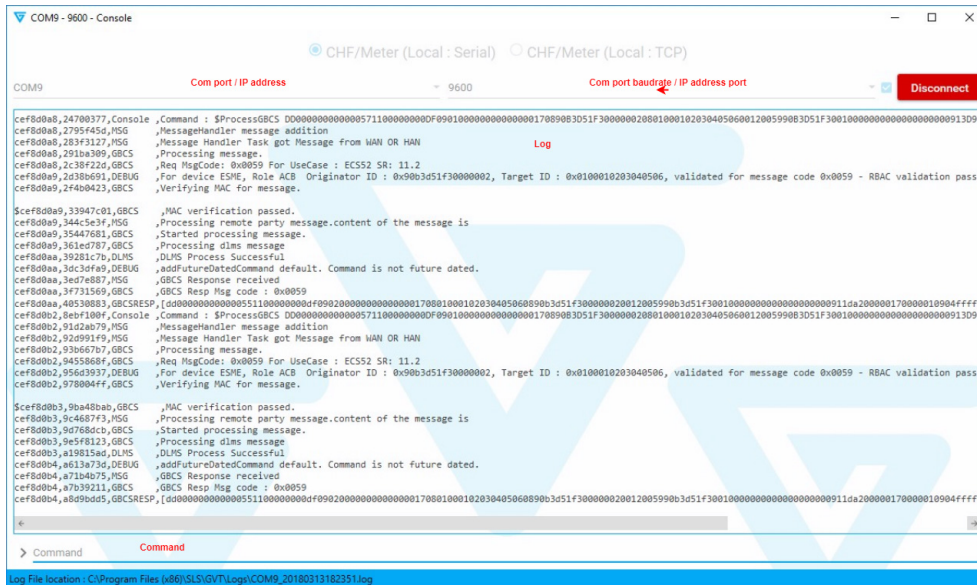


To save Logs into text file, user needs to select the check-box option before connecting a device. It can be useful for future purpose.


After successful connection, user can view device Logs as shown in [Figure 3-27](#). Using command bar, user can execute device specific commands with connected device.

If Console Window is connected during the Test Case Execution, then this logs will also save in Test Case Results.

**Figure 3-27. Console Window**



## Parser Window

To generate Parsed information of any Response/Alert, click on the  button. It will display a parser window as shown in [Figure 3-28](#).

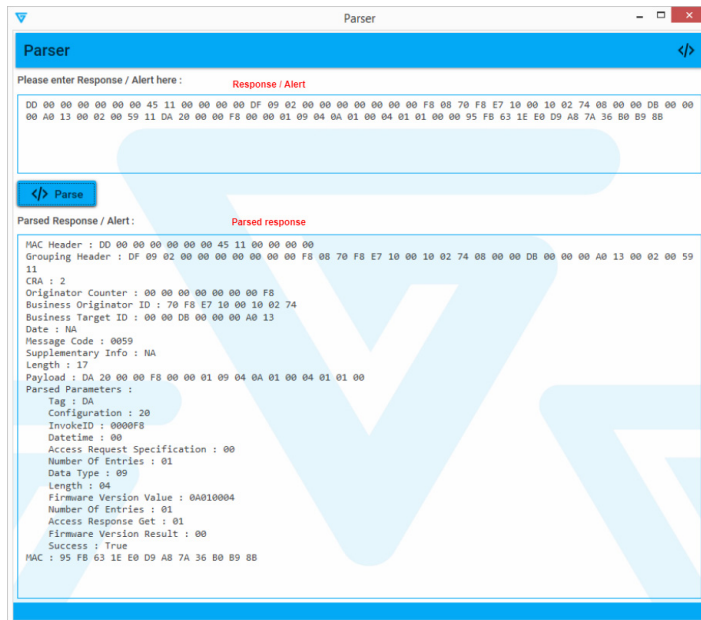
Now, enter the Response/Alert Payload (Hex format) information and click on the Parse button.

GVT will parse & decode the Payload as per GBCS format and it will display an in-detailed parsed information as shown in [Figure 3-28](#).

Parser will not parse encrypted responses.



**Figure 3-28. Parser to Response/Alert Parser**



## Repository

Using Repository, user can upload, download and view Configured Test-cases & Test Results to a particular location. It can be useful to multiple users for different test scenarios and can help them to reduce their test-time.

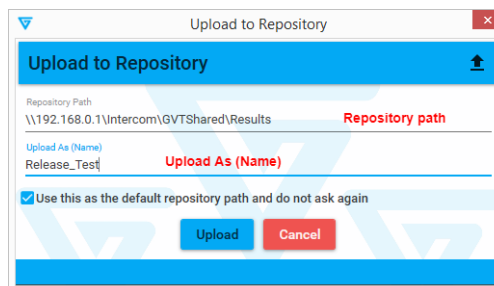
### Upload to Repository

To upload any test-case or test result to Repository, click on the  button.

It will display a window as shown in [Figure 3-29](#). User needs to enter a valid Repository Path and Upload Name.


To select mentioned path as default, user can select check-box option.

**Figure 3-29. Upload to Repository**





## Test Case Repository

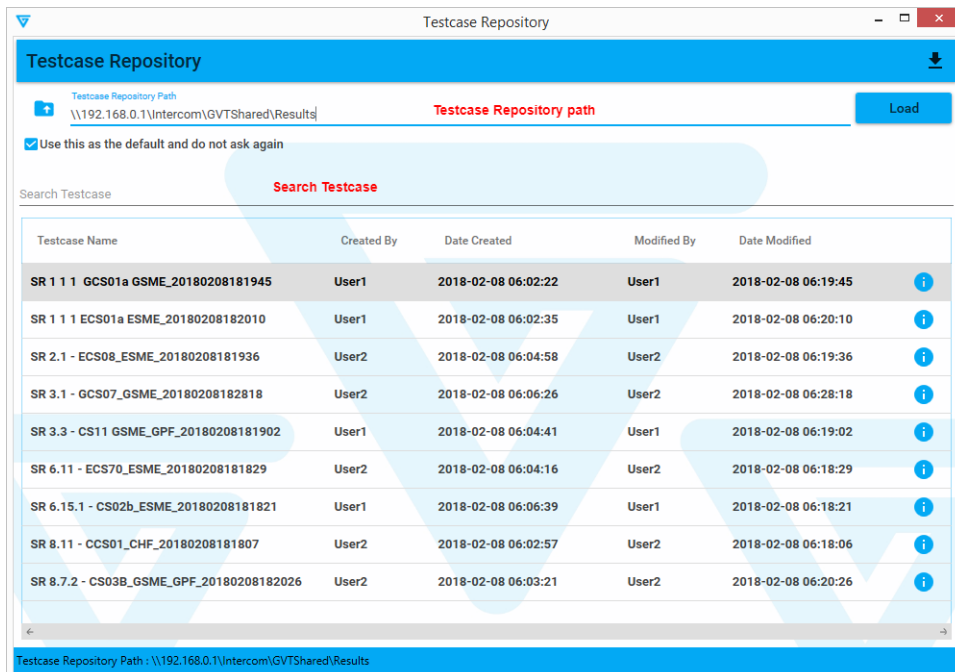
To download any test-case from Repository, click on the  button. It will display a Test Case Repository window as shown in [Figure 3-30](#).

Browse/Paste Repository path and click on the Load button. It will fetch all the available test-cases as shown in [Figure 3-30](#).


User can search particular Test-case by entering test-case details at Search option.

Double Click on the test-case to download it from repository.

**Figure 3-30. Test Case Repository**



## Test Results Repository

To view any test results from Repository, click on the  button. It will display a Test Result Repository window as shown in [Figure 3-31](#).

Browse/Paste Repository path and click on the Load button. It will fetch all the available test results as shown in [Figure 3-31](#).

User can search particular Test Result by entering test-case details at Search option.

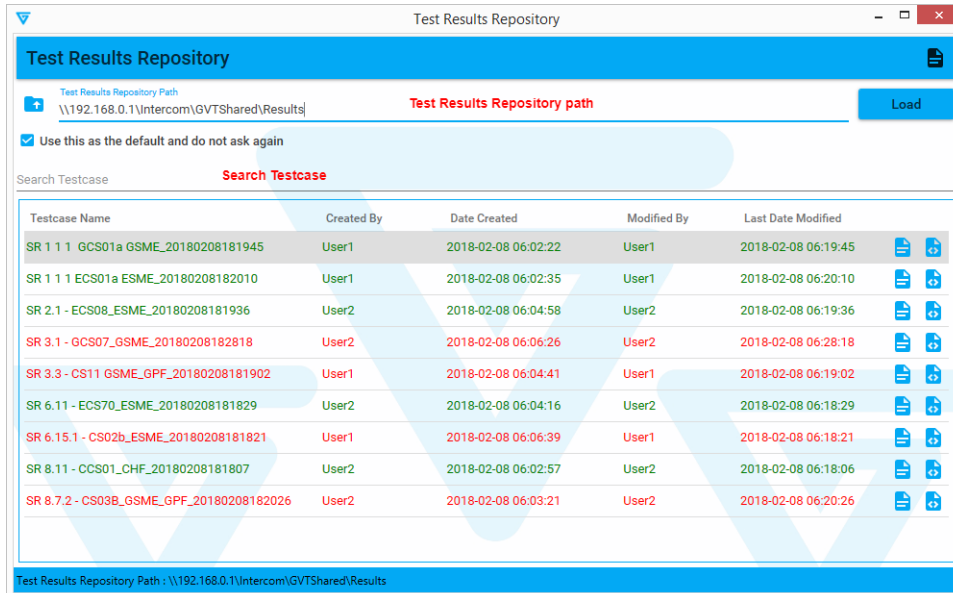
Click on the  button, to view Test Report.

Click on the  button, to view Test Logs.




Green/Red row color indicates passed/failed test-cases.

**Figure 3-31. Test Results Repository**

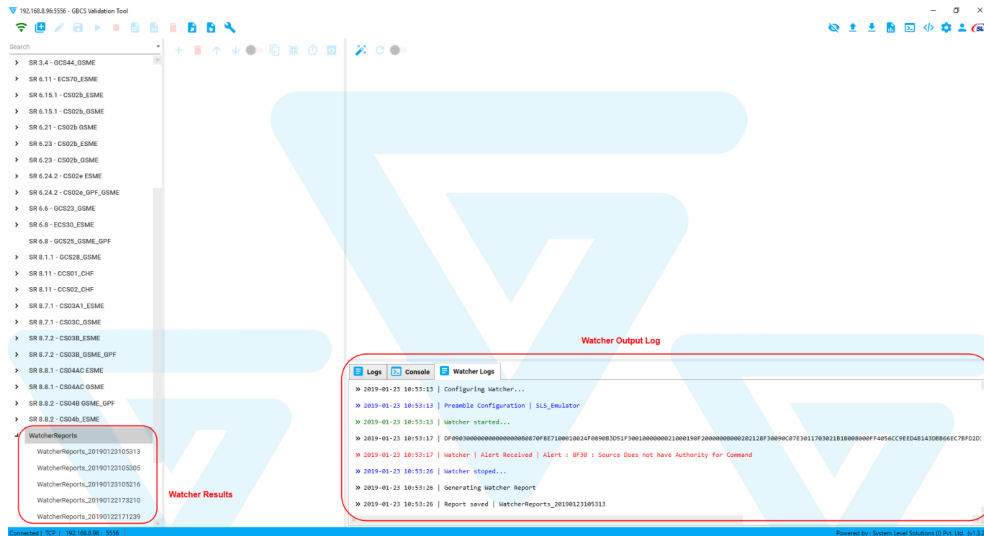


Testcase Name	Created By	Date Created	Modified By	Last Date Modified
SR 1 1 1 - GCS01a_GSME_20180208181945	User1	2018-02-08 06:02:22	User1	2018-02-08 06:19:45
SR 1 1 1 - ECS01a_ESME_20180208182010	User1	2018-02-08 06:02:35	User1	2018-02-08 06:20:10
SR 2.1 - ECS08_ESME_20180208181936	User2	2018-02-08 06:04:58	User2	2018-02-08 06:19:36
SR 3.1 - GCS07_GSME_20180208182818	User2	2018-02-08 06:06:26	User2	2018-02-08 06:28:18
SR 3.3 - CS11_GSME_GPF_20180208181902	User1	2018-02-08 06:04:41	User1	2018-02-08 06:19:02
SR 6.11 - ECS70_ESME_20180208181829	User2	2018-02-08 06:04:16	User2	2018-02-08 06:18:29
SR 6.15.1 - CS02b_ESME_20180208181821	User1	2018-02-08 06:06:39	User1	2018-02-08 06:18:21
SR 8.11 - CCS01_CHF_20180208181807	User2	2018-02-08 06:02:57	User2	2018-02-08 06:18:06
SR 8.7.2 - CS03B_GSME_GPF_20180208182026	User2	2018-02-08 06:03:21	User2	2018-02-08 06:20:26

## Watcher

To start watcher, click on  button. It will capture alert continuously on connected interface. Watcher Output Log will display captured alert as shown in Figure 3-32.

**Figure 3-32. Watcher Output Log**



To stop watcher, click on same button again. After stop watcher, Reports and Logs will be saved in WatcherReports. Individual WatcherReports will be displayed on the left panel as shown in Figure 3-32.



Watcher will be pause while regression is running and resume after regression finishes.

## 4. Advantages of GVT

1. User friendly and intuitive UI which makes it easy for novice testers to understand and operate the tool without spending more learning time.
2. Option to configure multiple sets of Remote Party Certificates and use any of them while generating a Test Case.
3. It supports to test multiple Device types like ESME, GSME, PPMID and HCALCS.
4. Options to test multiple combination of devices like CHF + Meter, Only CHF, Only Meter, etc.
5. Multi-connection interfaces are supported for different versions of CHs and Meters.
6. Ready-made Scenarios can be provided where combination of Set/Get commands are bunched together.
7. Scheduling of Regression Test can be added.
8. GVT can be install and configure with any Windows supported machines.
9. Backward compatible to perform test with previous GBCS specific versions.
10. This tool can also be used by Meter manufacturers during their development phase to validate their GBCS implementation without having HAN communication ready.
11. We can execute Regression tests on ESME and GSME simultaneously if they are connected to same CH. Two different CHs are not required.
12. Using “Disable Security” feature, user can test GBCS implementation on SME devices without validating their security (MACS/Signatures).
13. Using “Negative Test” feature, user can test negative scenarios, where intentionally we send incorrect command and expect specific Alert in response.
14. An easy to understand Report makes it easy to identify the issue in case of Test Case fails.

- 15.** User inputs for the variable parameters are validated, which reduces the chances of manual error.
- 16.** Logs from any device under test can be captured and saved in text files which can be used for future purpose.

<b>Acronym</b>	<b>Description</b>
ACB	Access Control Broker
CHF	Communications Hub Function
GBCS	Great Britain Companion Specification
ESME	Electricity Smart Metering Equipment
GSME	Gas Smart Metering Equipment
SMIP	Smart Metering Implementation Programme
TCH	Test Communications Hub
ITCH	Instrumented Test Communications Hub