



Genie Logging Tool User's Guide

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Table of Contents

1. Introduction	1
2. Genie Logging Tool	2
2.1. Environment	2
3. Using the Genie Logging Tool	4
3.1. Configuration	4
3.2. Log	5
3.3. Edit.....	10
3.4. View	11
3.5. Signal Filters.....	13
3.6. Run.....	19
3.7. Special.....	20
3.8. Buttons	23
3.9. Help	25
4. The Main Window of Genie Logging Tool	27
4.1. Signal View.....	27
4.2. Logging Playback Toolbar	30
4.3. Trace Output Window	31
4.4. Status Bar.....	32
4.5. Rrc and Nas Message Decoder	33
4.6. Q&A	37

List of Figures

Figure 1.Download the firmware to a target device using UART connection	2
Figure 2.Creation of paired ports	3
Figure 3.Genie configuration dialog box	4
Figure 4.Edit Configuration dialog box	4
Figure 5. Log Menu	Error! Bookmark not defined.
Figure 6.Save as dialog box	7
Figure 8. Save Fragments	8
Figure 9.Enter Record Number dialog box	9
Figure 10.Write Text File	9
Figure 11.Edit Menu	10
Figure 12.Copy dialog box	10
Figure 13.Find dialog box	11
Figure 14.Signals View	12
Figure 15.Task Assertions dialog box	13
Figure 16.Filter Menu	13
Figure 17.Signal Filter dialog box	14
Figure 18.Find Signal dialog box	15
Figure 19.Signal Options dialog box	16
Figure 20.Filter Format dialog box	17
Figure 21.Format Content	18
Figure 22.Miscellaneous	18
Figure 23.Run Menu	19
Figure 24.Special Menu	20
Figure 25.Select Font dialog box	20
Figure 26.VirtualAT dialog box	21
Figure 27.AT Command Logger	22
Figure 28.Throughput Monitor	22
Figure 29. Rrc and Nas Mesage Decoder	Error! Bookmark not defined.
Figure 30.Trigger UE assert	23
Figure 31. Genie Button Menu	23
Figure 32. Genie version	26
Figure 33.Signal View Window	Error! Bookmark not defined.
Figure 34.Signal list popup menu	28
Figure 35.Single Signal dialog box	29
Figure 36.Signal Contents window	30
Figure 37.Log playback toolbar	30
Figure 38.GKI Traces Output Window	31
Figure 39.Status Bar	32
Figure 40. Rrc and Nas Message Decoder	33
Figure 41.RRC ASN.1 Decoder	Error! Bookmark not defined.

Figure 42.The steps of playback log	34
Figure 43.Example of message and its decoded form	34
Figure 44.Contents of NAS message	35
Figure 45.Configure WireShark(1).....	35
Figure 46.Configure WireShark(2).....	36
Figure 47.select “Decode All and Output Pcap Data”	36
Figure 48.Extract Pcap Data	37

1. Introduction

GENeric **IntE**grated (GENIE) test tool provides an integrated test environment for projects written to the TTPCom Generic Kernel Interface (GKI) standard. It provides a test platform throughout a project's development life cycle by providing the following test types: Unit Testing, Integration Testing, Split System Testing and Target Testing.

GENIE allows Real Time Logging of GKI signalling interfaces and Signaling Script Interpretation on both the PC and Target simultaneously depending on the test type. Log files can be packaged with the associated signal database, associations and filter settings in a Log Package, this makes the process of passing logs to a 3rd party much simpler. With GKI Server, PassThru tasks and Add-On DLLs additional decoding or processing on any logged signals can be performed.

Test verification can be performed by using GENIE's Signal Checking capabilities. The user interface is documented in the Genie User Interface section.

- Genie is a Windows application which provides logging for the nbio project for two streams of data:
 - GKI signals:
 - Modem inter-task communication.
 - APPs traces via the SIG_TEST_FILE_OUT signal.
 - HSL traces: traces from any part of the system.
- The two streams are independent of each other
 - On PC, two separate serial communication ports are used (UART based or virtual if using USB).
 - Both streams can be captured at the same time.
 - It is possible to capture GKI data only, by disabling the HSL (High Speed Logging) stream.
 - Genie uses TeraHsl application for all HSL stream capture and display.
 - By using stand-alone TeraHsl application, one can capture HSL data only.

2. Genie Logging Tool

This section provides a user's guide for the Genie Logging Tool and covers the following items:

- The supported environment for user.

2.1. Environment

The Genie Logging Tool can be used on Window XP (64 bit), Windows 7 (32/64 bit) and Windows 8 (32/64 bit) PC that support USB/UART interface communication.

1. Installing the **UART/USB** driver.
2. To install the **Flash Tool**, simply copy the package folder to your Windows computer. No further steps are required.
3. Open the **FlashTool.exe**.
4. **Download** the firmware.

2.1.1. Download the firmware with UART/USB

To complete the download operation using UART/USB (see Figure 1):

- 1) Plug in the **UART** cable. (If using USB, Plug in the **USB** cable and need USB download mode jumper).
- 2) Click **Download** on the left panel of the main GUI.
- 3) Select **UART** port from the **COM Port** drop down menu. (If using USB, select **USB** COM Port).
- 4) Click **Open** to provide the configuration file.
- 5) Click **Start** to start downloading.
- 6) Power on the HDK or press reset button on the HDK and then the process will start automatically.

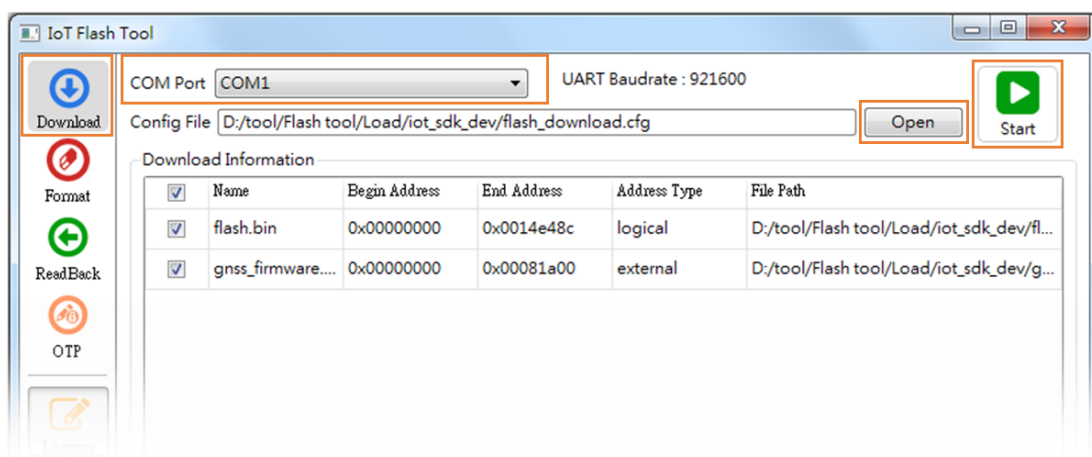


Figure 1. Download the firmware to a target device using UART connection

2.1.2. Installation of com0com

The utility VirtualAT provides support of AT commands over GKI. This effectively by-passes the requirement to have a dedicated UART for UE AT command support. It is done by creating a paired set of COM ports, one end is used by Genie, and the other end by an external application. See Figure 2.

- 1) **Open** installation batch file.
- 2) Click tools/VirtualAT/depends/**install.bat**.
- 3) **Configuration** of paired ports required for VirtualAT application.

In the paired ports created by the batch file, only the serial port for the external application will be shown in **Device Manager**.

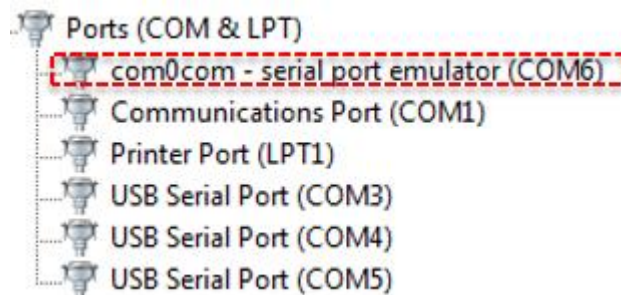


Figure 2. Creation of paired ports

3. Using the Genie Logging Tool

3.1. Configuration

From this menu you can Edit, Open, Save or create a new configuration. Configurations are stored in .GNI files. A GNI file defines all the parameters for a test e.g. Target test to use etc. This menu also contains a Most Recently Used (MRU) list for GNI files. See Figure 3.

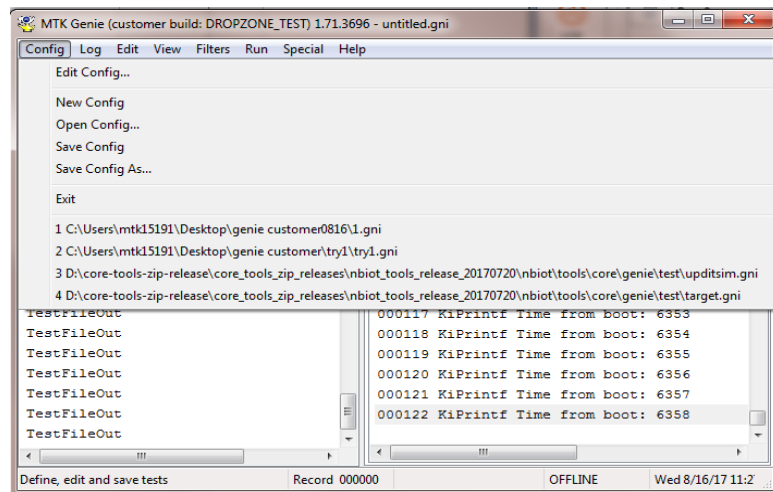


Figure 3. Genie configuration dialog box

3.1.1. Edit config

The **Edit Configuration** dialog box allows the user to configure the parameters for a Genie test. Dialog can be accessed by selecting the Edit Configuration option. Click on a tab below to view one of the **GKI**, **Enable HSL logging**, **Baud Rate**, **Integrate RRC and ASN message decoder** and **Database** (see Figure 4). Hot key: Esc.

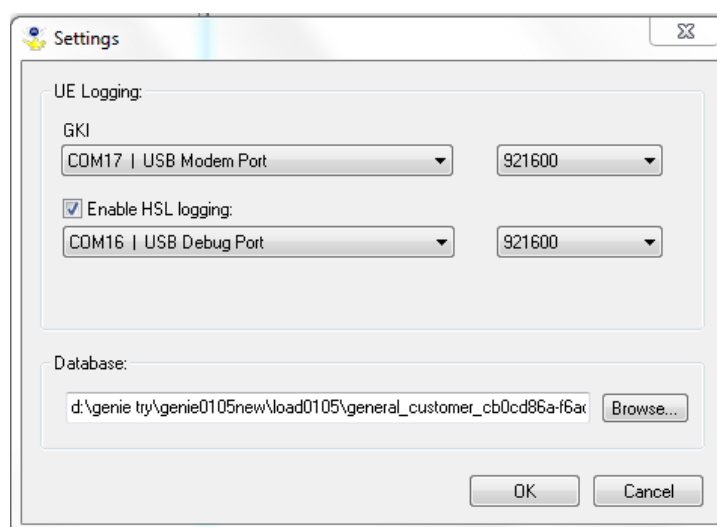


Figure 4. Edit Configuration dialog box

1. Select the correct **GKI COM** from the COM Port drop down menu. (If using USB driver, GKI com Port corresponds to USB Modem Port, HSL com Port corresponds to USB Debug Port, shown in **Device Manager**).
2. Click **Enable HSL logging** option to select COM Port. If you don't click this option, HSL logging will be disable.
3. Select Integrate RRC and ASN message decoder if you want to decode and display ASN.1 and NAS message.
4. Select the correct location of Database. The default format of **database file (*.dec** file from Target Software Load Package).
5. Click **OK** to complete configuration.

3.1.2. New config

Selecting this creates a new test and opens the box so that the new test can be configured. If the current Test has not been saved then the user will be prompted to save the current test before creating the new test. Once you have configured the new test you should use the **Save As** option from the configuration menu to save your work in a .GNI file.

3.1.3. Open config

Selecting this allows you to **open** a previously saved test environment from a .GNI file. If the current test has not been saved when this option is selected, you will be asked whether you want to save it first.

3.1.4. Save config

This option allows the current test to be **saved** in a .GNI file. If a name has already been specified for the .GNI file selecting this will cause it to get updated, if no name has yet been specified the Save as dialog box will appear.

3.1.5. Save config As

This option allows the current test to be saved in a .GNI file. If a name has already been specified for the .GNI file selecting this will cause it to get updated, if no name has yet been specified the **Save As** dialog box will appear

3.1.6. Exit

This option causes GENIE to shut down.

If the current test has been changed you will be prompted to save it first. If the current filter has not been saved you will be prompted to save it before exiting. Hot Key: **ALT+F4**.

3.1.7. Config MRU

The Most Recently Used (**MRU**) List of tests allows you to quickly access previously opened tests (.GNI) files.

3.2. Log

The **Log Menu** allows access to previously saved logs or script files. Logs are saved in .TLG files and binary scripts are saved in .TSB files. There is also a Most Recently Used (MRU) list for previously accessed/created log files. As shown in **Error! Reference source not found..**

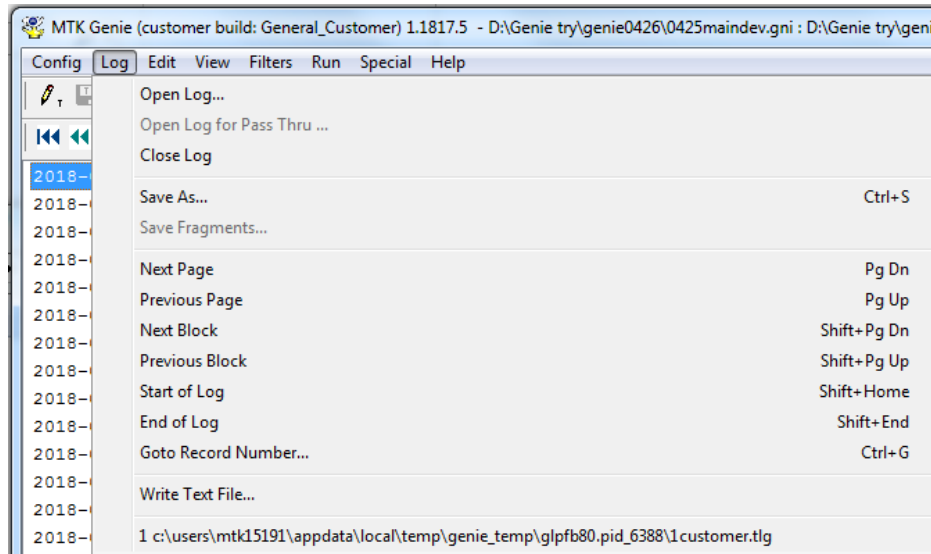


Figure 5. Log Menu

3.2.1. Open Log

This option allows previously created **Log Packages** (.GLP), **log files** (.TLG) to be viewed again. An **Open File dialog** box appears from which you can select the log or script file.

Log Package

A Log Package is a single file that contains all the information required to decode and display a number of log files.

The files a Log Package will contain are:

1. The test configuration file (**.GNI**).
Although this file is not required when displaying a log file it can provide important debug information if there is something wrong with the log files.
2. The signal database file (**.DEC**).
This file contains all the information about the structure of signals.
3. The signal associations file (**.ASS**).
This file contains information used to improve the display of logged signals.
4. The filter settings file (**.TSF**).
This provides information on what the filter configuration was when the logs were taken.
5. The test script binary file (**.TSB**).
This file is not needed to display the log files but it is useful when debugging a problem to be able to see if any signaling came from the input script file.

6. One or more log files (.TLG).

Those contain GKI log.

7. Optional: HSL Log Files (.hslLog and .hslLog2).

When HSL logging is enabled, HSL log is saved into GLP as well.

3.2.2 Close Log

This option allows the current log to be closed.

3.2.3 Save as

This option allows the current log to be saved independently from the log file options. **Save File dialog** box appears from which you can select the name to save the log as. See Figure 6.

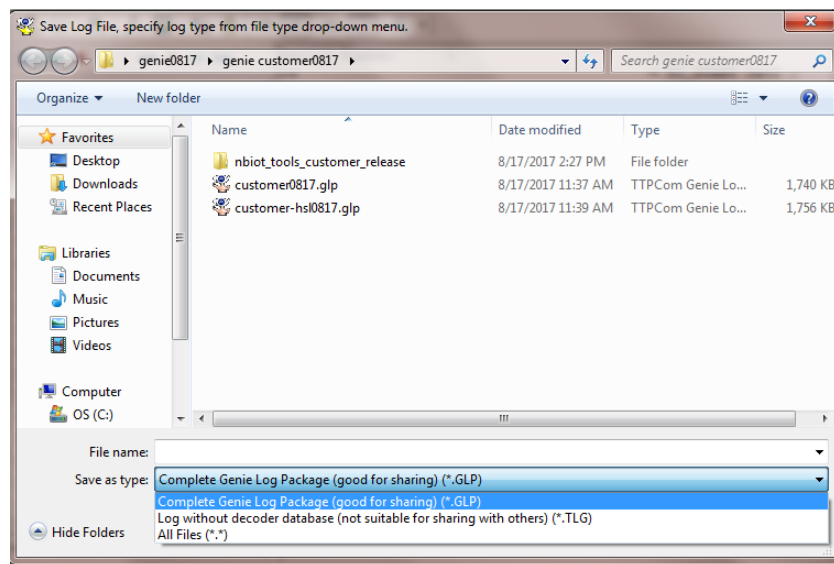


Figure 6. Save as dialog box

You can also select if you want to save *.GLP or *.TLG file.

3.2.4 Save Fragments

Enable Fragments can automatically save log interval for a few minutes. This function avoid long time test that generate a large size log.

- 1, Click Enable Fragments. After test, cancel click.
- 2, Select directory for acquisition files
- 3, Name for captured files.
- 4, set interval minutes.

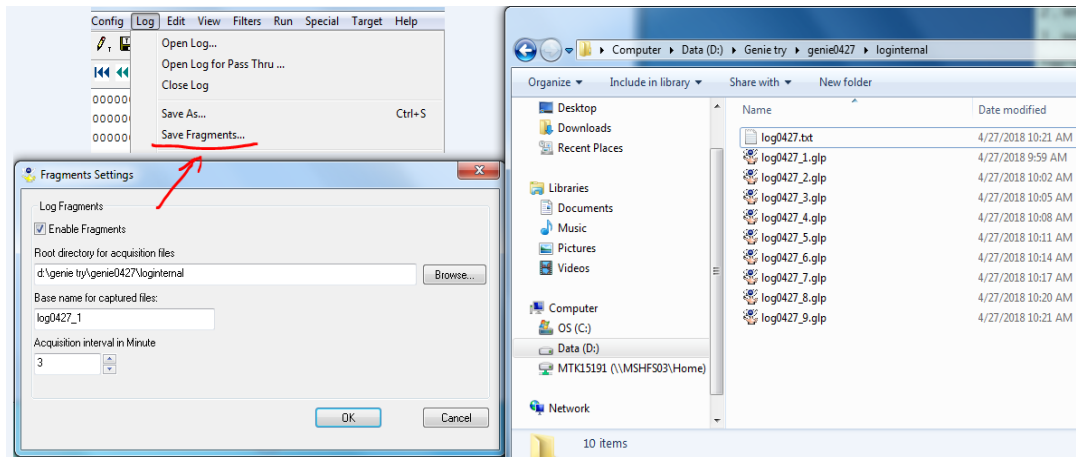


Figure 7. Save Fragments

3.2.5 Next Page

Selecting this option will display the next page of signals in the **Signal Type** list box (see page 27). Hot key: **Page down**.

3.2.6 Previous Page

Selecting this option will display the previous page of signals in the **Signal Type** list box. Hot key: **Page Up**.

3.2.7 Next Block

When GENIE loads a log, it breaks it up into blocks of 1000 signals. Only one block can be displayed at one time i.e. there is a maximum of 1000 signal types listed. To move onto the next block in the log or script file select this option. Hot key: **Shift + Page Down**.

3.2.8 Previous Block

When GENIE loads a log, it breaks it up into blocks of 1000 signals. Only one block can be displayed at one time i.e. there is a maximum of 1000 signal types listed. To move back to the previous block in the log or script file select this option. Hot key: **Shift + Page Up**.

3.2.9 Start of Log

This option will cause Genie to highlight the first visible record in the current log. Hot key: **Shift + Home**.

3.2.10 End of Log

This option will cause Genie to highlight the last visible record in the current log. Hot key: **Shift + End**.

3.2.11 Goto Record Number

This option allows you to select which record to display within the log. This opens the **Enter Record Number** dialog. As shown in Figure 8. Genie will load the correct block within the log and then highlight the given record number.

This dialog can also be accessed by clicking on the record number panel of the **status bar** (see page 32). Hot key: **Ctrl + G**.

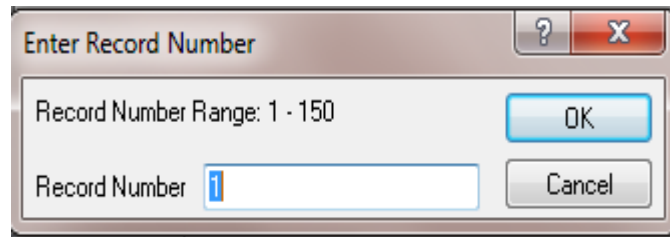


Figure 8. Enter Record Number dialog box

The dialog displays the valid range of record numbers and provides an edit box in which to enter the required record number. Pressing the OK button confirms instructs Genie to use the record number given.

3.2.12 Write Text File

This option allows the currently loaded log to be saved as a text file, when activated the Save File dialog is displayed. As shown in Figure 9.

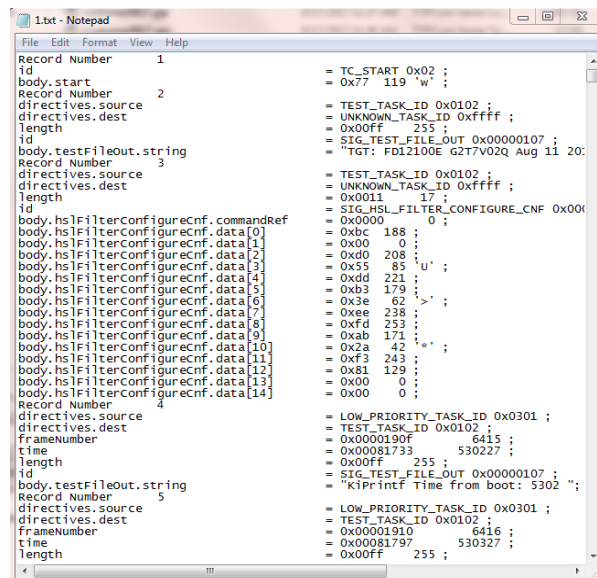


Figure 9. Write Text File

3.2.13. Log MRU

The **Most Recently Used (MRU)** List of log/script files allows you to quickly access previously opened/created log files. See **Error! Reference source not found..**

3.3. Edit

The **Edit Menu** allow you to copy text from any of the output windows (e.g. Signal Contents) into the clipboard. The text can then be pasted into any application that accepts input from the clipboard e.g. Word, Notepad, Multi-Edit etc. You can also search the signals for a string using the **Find** and **Find Next** menu items. See Figure 10.

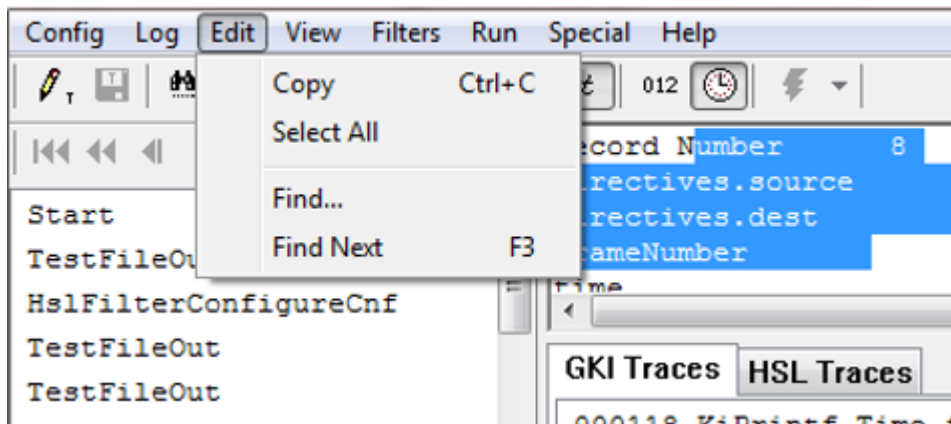


Figure 10. Edit Menu

3.3.1. Copy

If any text has been selected in either the **Signal Contents**, edit controls of the **main view** (see page 27), this option will copy the selected area into the clipboard. The copied text can then be pasted into any Application which accepts text pasted from the clipboard. As shown in Figure 11. Hot key: **Ctrl + C**.

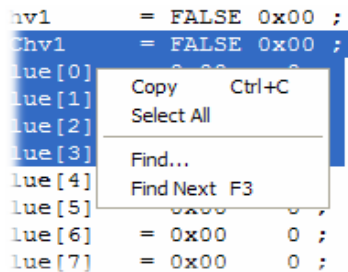


Figure 11. Copy dialog box

The pop-up menu can also be used to copy text from either the **Signal Contents** windows. To use this select some text then right click over the window and select the appropriate menu item.

3.3.2. Select All

Selecting this option selects all the text displayed in either the Signal Contents window. This text can then be copied into the clipboard.

3.3.3. Find...

Selecting this opens the **Find dialog** box which allows you to search for a string of text in any of the signals in the current block. As shown in Figure 12.

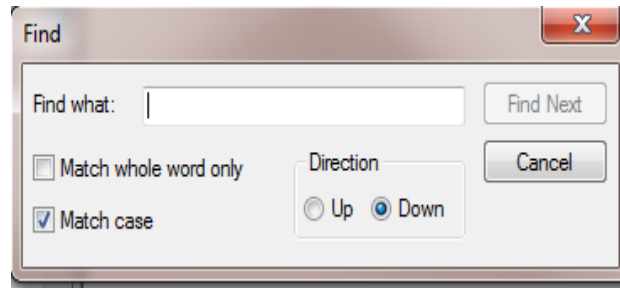


Figure 12.*Find dialog box*

The Find dialog allows the user to search all the signal contents for the specified text. This dialog can be accessed by selecting the **Find** option.

Find what

The text that is to be matched.

Match whole word only

If checked only match with text which has white space on either side of the Find what text.

Match case

If checked the text case must be an exact to be found.

Direction: Up

Search from the current position up.

Direction: Down

Search from the current position down.

Find Next

Find the next occurrence of the Find what text.

3.3.4. Find Next

This option finds the next occurrence of the text entered in the **Find** dialog box. Hot key: **F3**.

3.4. View

The **View Menu** controls what is displayed in the main window. Both the **Button** and **Status** bars can be hidden by selecting the appropriate menu option. A special **Trace Out** window exists which captures any **SigTestFileOut** signals received and displays the text contained in the signal. See Figure 13.

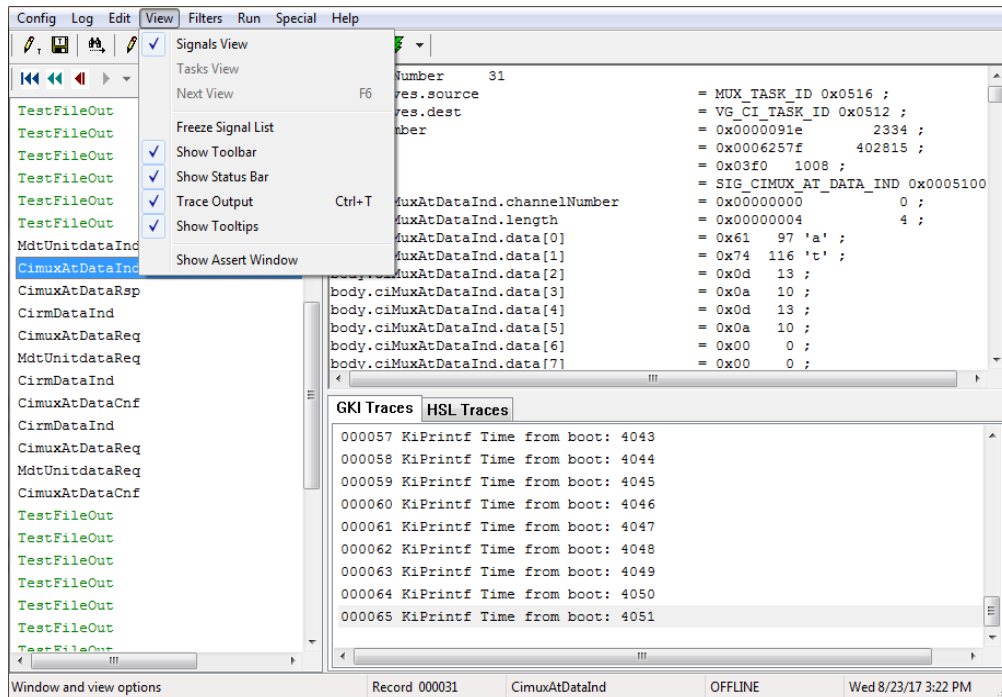


Figure 13. Signals View

3.4.1. Signals View

This selects the **Signal View** for the main window (see page 27), this view is available for all Test Types.

3.4.2. Freeze Signal List

Selecting this stops the **Signal Type** list box and **Trace Out** window from scrolling while logging signals, this allows signals to be selected that would normally have scrolled out of view.

3.4.3. Show Toolbar

This option toggles whether the **Button Tool Bar** is hidden or displayed. See page 23.

3.4.4. Show Status Bar

This option toggles whether the **Status Bar** is hidden or displayed. See page 27.

3.4.5. Trace Output

This option toggles whether the **Trace Out** window is hidden or displayed. See page 31. Hot key: **Ctrl + T**.

3.4.6. Show Tooltips

This option toggles whether tool tip windows are displayed or not.

3.4.7. Show Assert Window

This option displays the **Task Assertions** dialog (DevFail, DevAssert etc from system under test). See Figure 14.

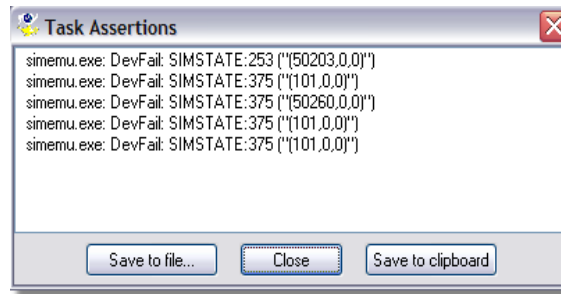


Figure 14. Task Assertions dialog box

The **Task assertions** dialog displays all asserts generated by the PC tasks under test. Asserts come from the GKI macros DevFail, DevAssert, DevCheck and DevParam. There may be other sources but this is depends on the system under test. This dialog will automatically appear when a task assertion is detected. It can be manually displayed using the **Show Assert Window** option. The 'Save to file...' and 'Save to clipboard' options save the list of asserts to either a file (a save file dialog is used to allow the user to select the destination file) or the clipboard

3.5. Signal Filters

The **Filter Menu** allows .TSF filter files to be Edited, Created, Opened and Saved. There is also a Most Recently Used (MRU) list for previously accessed filter files. As shown in Figure 15.

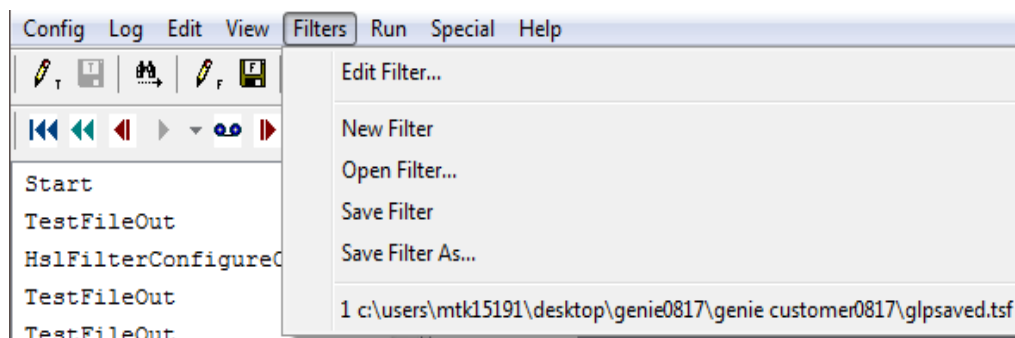


Figure 15. Filter Menu

3.5.1. Edit Filter...

Selecting this option opens the **Edit Filter** dialog box. As shown in Figure 16.

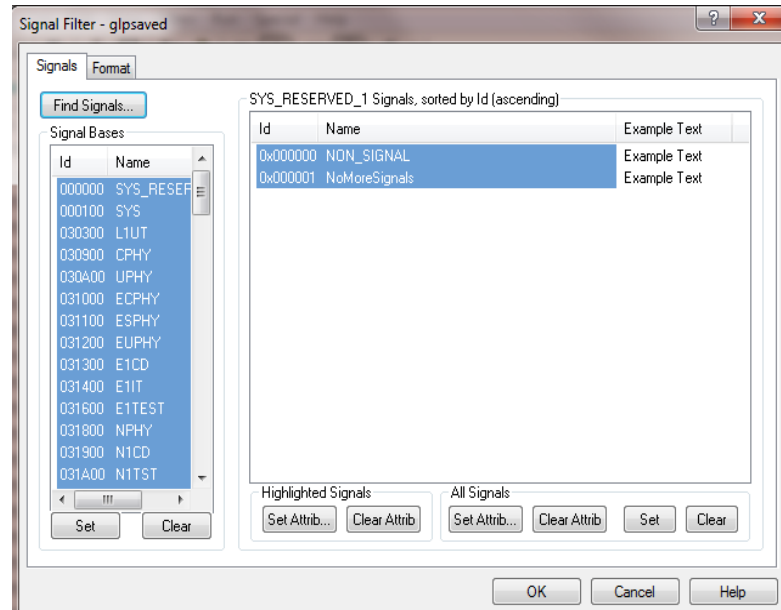


Figure 16.Signal Filter dialog box

(1) Signals

The **Signals Page** of the **Edit Filter** dialog allows individual signals to be selected for filtering on the target and on the PC. Click on the **Find Signals...** button to search for signals.

Single clicking on a signal base name (left list box) shows the signals within that base in the right hand list box. If a signal base appears in square brackets when it is highlighted it indicates that only some of the signals are selected within that base.

Double clicking on a signal base selects or de-selects all the signals in that base.

Single clicking on a signal in **the right** hand list box selects or de-selects that signal.

Double clicking on a signal in **the right** hand list box brings up the **Edit Signal Options** (see Figure 18) dialog box from which individual signal display options can be set.

Right clicking on a signal in the right hand box will display a popup menu that allows any signal documentation to be viewed.

Find Signal...

This dialog can be accessed by clicking on the **Find Signals...** button on the **Signal** page of the **Edit Filter** dialog. See Figure 17.

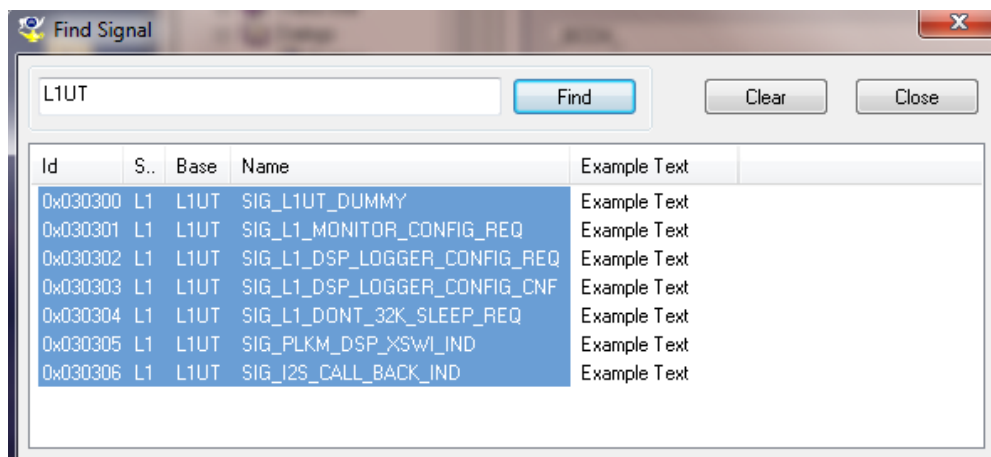


Figure 17. Find Signal dialog box

This dialog can be used to find a signal containing any string found in the signal name, base name, set name or the hex signal id string.

Enter the string to be searched for in the edit control to the left of the **Find button** and then press return on the keyboard or click on the Find button with the mouse. The list of matching signals will be displayed in the list box.

Clicking on an entry in the list box will change its filter status i.e. **highlighted** means it will be logged.

Double clicking on an entry in the list box will display the **Edit Signal Options** dialog.

Clicking on **Clear** will clear the find edit control and the find results.

Clicking on **Close** will close this dialog.

Signal Bases

Set

Clicking on this button enables all the signals in all the bases.

Clear

Clicking on this button disables all the signals in all the bases.

Highlighted Signals

Set Attrib...

Clicking on this button will open the **Edit Signal Options** Dialog box (Figure 18). Only signals that are highlighted in the filter will be affected by any changes in the signal options.

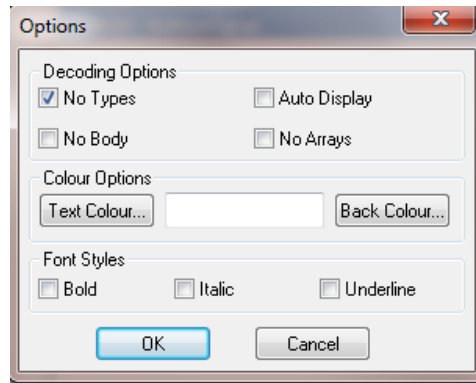


Figure 18. Signal Options dialog box

The **Edit Signal Display** dialog box allows display options for individual signals to be set. The Edit Signal Display dialog can be accessed by double clicking on a signal in the Signals Page of the Edit Filter dialog or by selecting **Set Signal Attributes...** from the Signal List Popup Menu.

Decoding Options

No Body

If this is selected only the signals id, source task and destination task is displayed i.e. the contents are not displayed.

No Types

If this is selected the C types for the fields in a signal are not displayed. By default this option is on.

No Arrays

If this is selected arrays will not be decoded e.g. array data with 5 entries would be displayed as data[0..4].

Auto Display

If checked GENIE will automatically display the decoded **Signal Contents** in the Signal Contents window.

Colour Options

Text Colour...

Clicking on this button will open the colour selection dialog which will allow you to set the text colour for the appropriate signals.

Back Colour...

Clicking on this button will open the colour selection dialog which will allow you to set the background colour for the appropriate signals.

Font Styles

Bold

Makes the font used to display the signal have the **bold** style.

Italic

Makes the font used to display the signal have the *Italic* style.

Underline

Makes the font used to display the signal have the Underline style.

Clear Attrib

Clicking on this button will clear the **Font** and **Colour** attributes for the highlighted signals.

All Signals

Set Attrib...

Clicking on this button will open the **Edit Signal Display** dialog box. All signals in the base will be affected by any changes in the signal options.

Clear Attrib

Clicking on this button will clear the Font and Colour attributes for all signals in the base.

Set

Clicking on this button enables all the signals within the currently selected signal group.

Clear

Clicking on this button disables all the signals within the currently selected signal group.

Clicking on the Id or Name header in either the Base or Signal list boxes will change the sorting of the items in that list box to be based on the selected column.

(2) Format

This dialog can be accessed by selecting the **Edit Filter** option and then clicking on the appropriate tab. The **Format Page** allows setting of options which affect the formatting of displayed signals, As Shown in Figure 19.

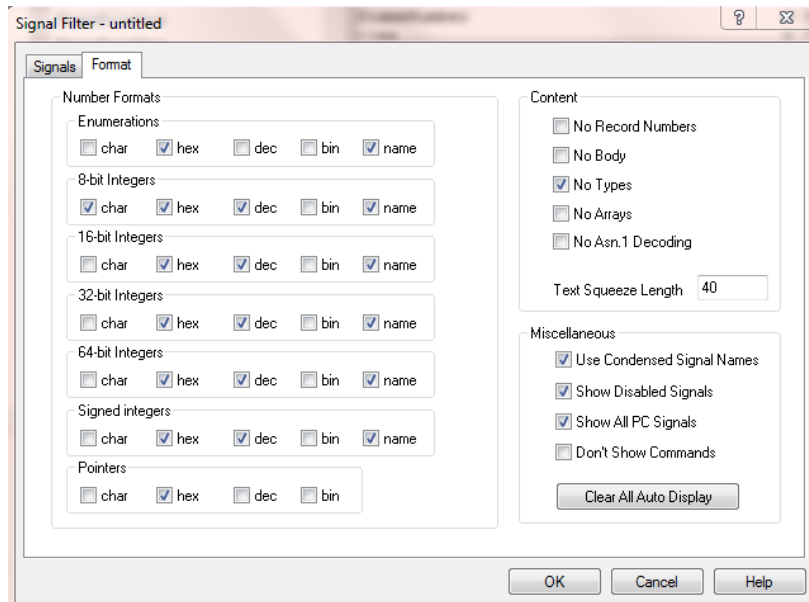


Figure 19. Filter Format dialog box

The **Number Formats** group on Format page of the Edit Filter dialog allows the user to specify how a Basic Data types are displayed as text in the **Signal Contents** window. The following formats are available:

char

If the data corresponds to a valid ASCII character it is displayed.

hex

The data is displayed as a hexadecimal number preceded by 0x.

dec

The data is displayed as a signed decimal value.

bin

The data is displayed as a binary number preceded by 0b.

name

For enumerations the name of the enumerated value is displayed or! UNKNOWN_ENUMERATION! Is displayed if the value is not known. For integers names will only be displayed if there is a VALUE NAME association given for the associated type.

The **Signal Formatting** Options allow the user to configure general options about how a signal is displayed in the **Signal Contents** window. As shown in Figure 20.

Figure 20.Format Content

No Record Numbers

If this is enabled the record number for a signal is not displayed in the **Signal Contents** window.

No Body

If this is selected only the signals id, source task and destination task is displayed i.e. the contents are not displayed.

No Types

If this is selected the C types for the fields in a signal are not displayed. By default this option is on.

No Arrays

If this is selected arrays will not be decoded e.g. array data with 5 entries would be displayed as data[0..4].

No Asn.1 Decoding

If this is selected arrays that contain ASN data will not be decoded and content will be presented as regular byte array.

The **Squeeze Length** option defines how many characters of text appear before the equals sign in a decoded signal in the **Signal Contents** window. GENIE will format the decoded signal output to display as much of the field name as possible with the given number of characters. If this is set to 0 then genie will not truncate or align the decoded signal text. This can be useful when saving a log as text to make sure all the structure information is present.

This group provides options to control how the filter is applied when displaying signals. See Figure 21.

Figure 21.Miscellaneous

Use Condensed Signal Names

If this option is enabled the signal name in the **Signal Type** list box is shown in condensed format e.g. SIG_TEST_FILE_OUT becomes TestFileOut.

Show Disabled Signals

If this option is enabled any signals which are logged but are not in the filter will be listed in the **Signal Type** list box but the signal name will have a line through it e.g. ~~AsiSimRemovedInd~~. The signal contents can still be viewed by clicking on the signal name.

Show All PC Signals

When running tasks on the PC (Unit, Integration or Split System testing) this option will cause all PC based signals to be logged/displayed no matter what the rest of the filter is set to.

Don't Show Commands

If this is enabled EMMI commands will not be displayed e.g. Wait, Delay and Start etc.

The **Clear Auto Display** option disables the Auto Display option for any signals that have it set i.e. signals that have it set will no longer be displayed automatically when they are received by GENIE.

3.5.2. New Filter

Selecting this option creates a new filter and opens the **Edit Filter dialog** box. If the current filter has not been saved you will be prompted to do so before creating the new filter.

3.5.3. Open Filter

This option allows the user to open a previously created filter (.TSF) file by displaying the **Open Filter dialog** box.

3.5.4. Save Filter

This option allows a named filter file to be saved, if the current filter is un-named the **Save as dialog** box will be displayed.

3.5.5. Save Filter As

This option allows the current filter to be saved as the name entered in the **Save As dialog** box.

3.5.6. MRU List of Filters

The Most Recently Used (MRU) List of filters allows you to quickly access previously opened filter (.TSF) files. As Show in Figure 15.

3.6. Run

The **Run Menu** starts and stops a test. As shown in Figure 22.

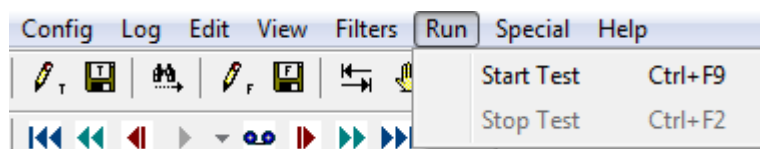


Figure 22.Run Menu

3.6.1. Start Test

This option starts the current test running. Hot key: **Ctrl + F9**.

The start button on the tool bar also has a drop down menu that presents some other options, see Start Test drop down menu. As shown in page 23.

3.6.2. Stop Test

This option stops the current test. Hot key: **Ctrl + F2**.

3.7. Special

The **Special Menu** has assorted features that don't fit into any other menu. See Figure 23.Special Menu

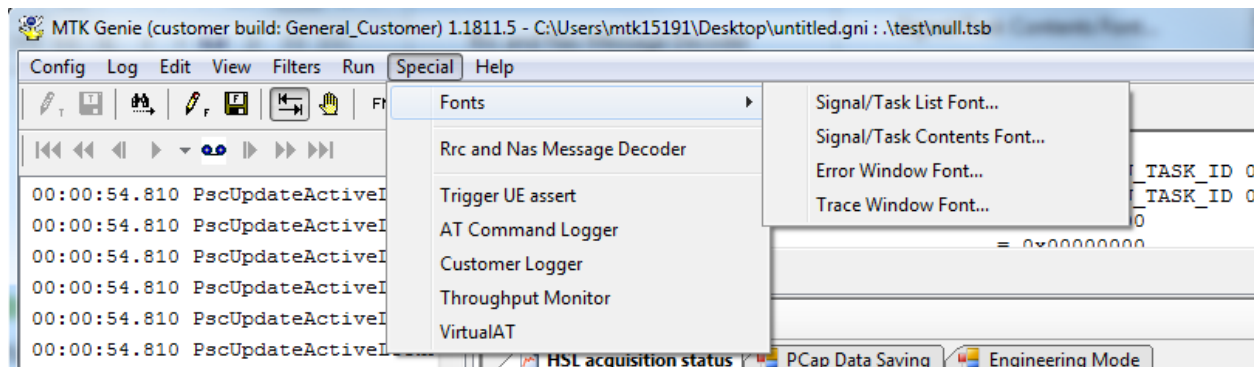


Figure 23.Special Menu

3.7.1. Fonts

The **Fonts sub-menu** allows the fonts for the main output windows to be set.

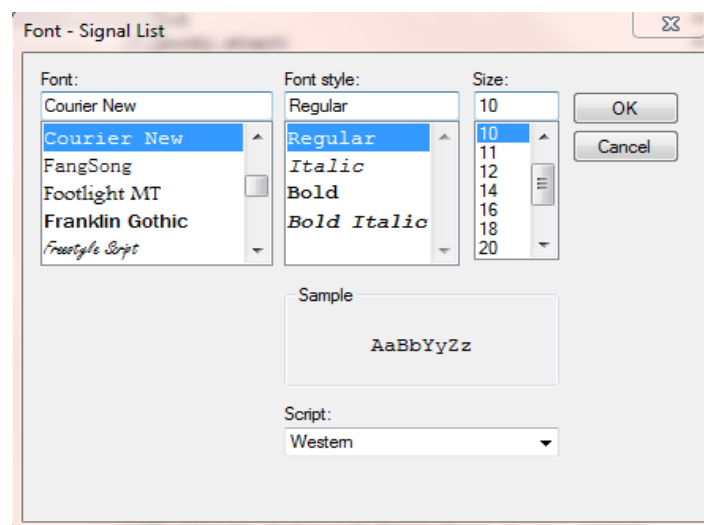


Figure 24.Select Font dialog box

Signal/Task List Font...

Selecting this opens the **Select Font dialog** box so that the font used in the **Signal Type** and PC Tasks list boxes can be changed.

Signal/Task Contents Fonts...

Selecting this opens the **Select Font dialog** box so that the font used in the **Signal Contents** and PC Task Out edit boxes can be changed.

Error Window Font...

Selecting this opens the **Select Font dialog** box so that the font used in the script compile/run error window can be changed.

Trace Window Font...

Selecting this opens the **Select Font dialog** box so that the font used in the **Trace Output Window** can be changed.

3.7.2 VirtualAT

Selecting this option opens the **VirtualAT dialog** box which allows to send the **AT command**. See Figure 25.

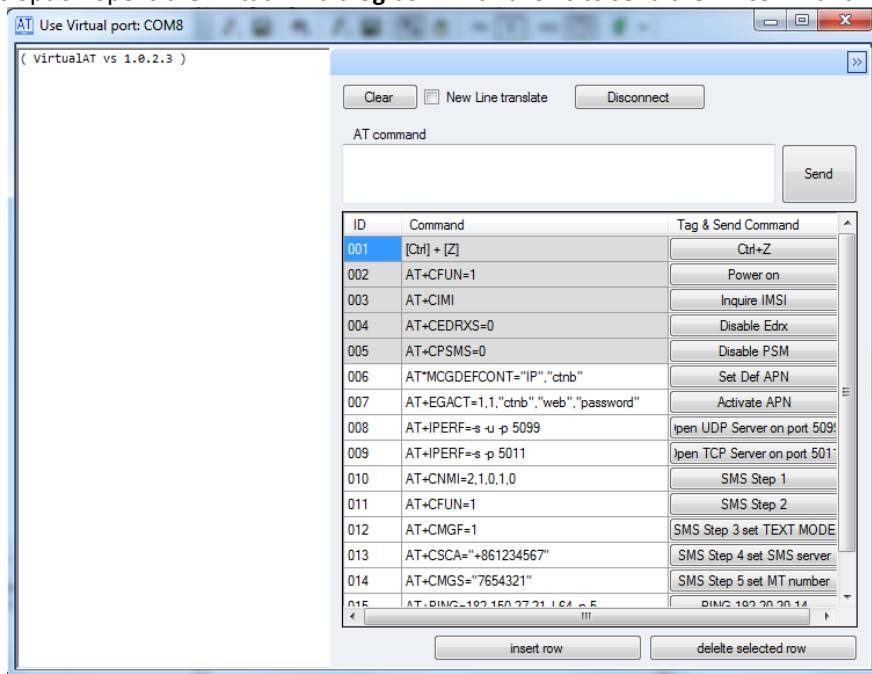


Figure 25. VirtualAT dialog box

Clicking the **connect** button, the UE will connect to the target. You can choose whether to enable the **New Line Translate**. When enabled it will reply any carriage return and new line with \r, \n respectively.

3.7.3 AT Command Logger

ATCommandLogger will show the detail which the AT Command send to the target and response to PC. It can work on online/offline Mode. Online/offline Mode refer to section 4.5.

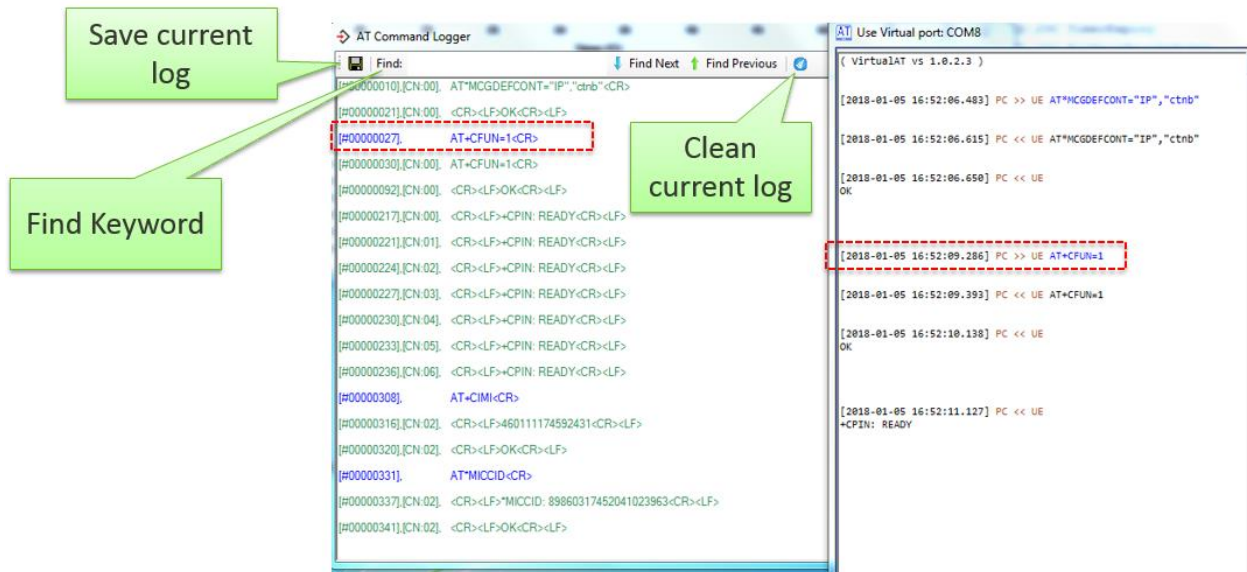


Figure 26.AT Command Logger

3.7.4 Throughput Monitor

Throughput Monitor will show the detail which throughput data (RLC/MAC). It can work on online/offline Mode. Online/offline Mode refer to section 4.5.

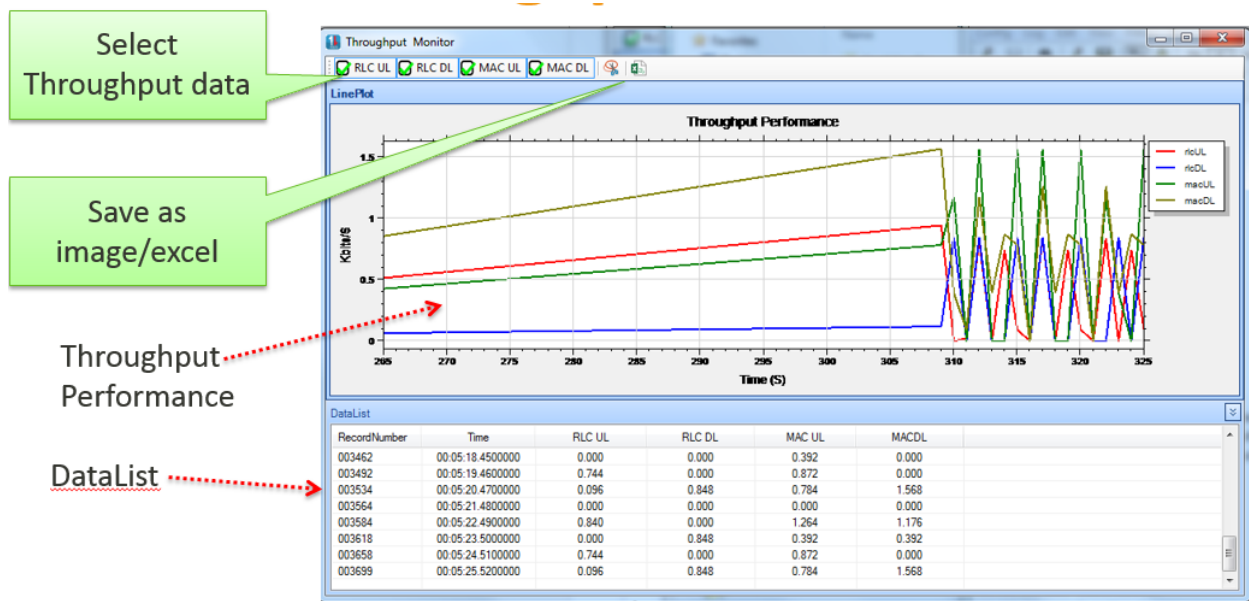


Figure 27. Throughput Monitor

3.7.5 Rrc and Nas Message Decoder

RRCDEC.exe is a utility which will display the decoded ASN.1 and NAS information.

This utility can be operated in offline mode, for replay of existing logs, or in online mode where the information is captured real-time from a target.

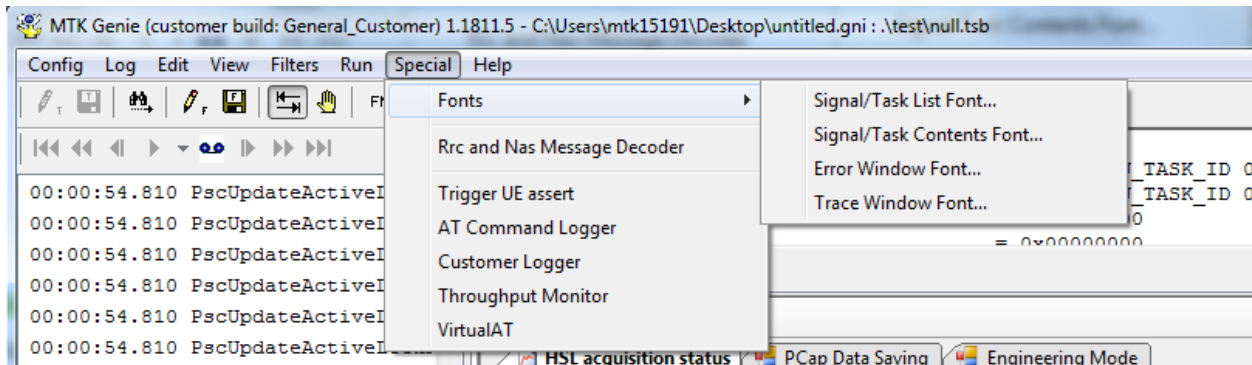


Figure 28. Rrc and Nas Message Decoder

More detail please attend to section 4.5.

3.7.6 Trigger UE assert

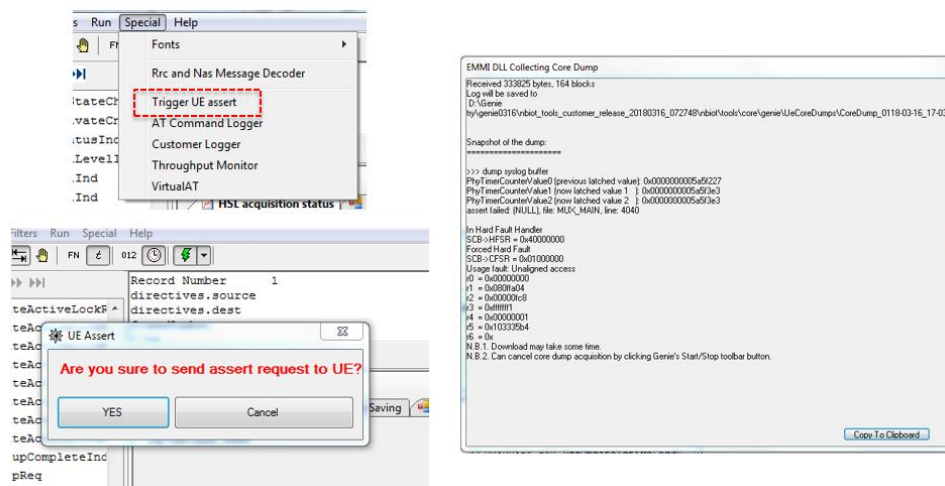


Figure 29. Trigger UE assert

Trigger UE assert option: you can send assert request to UE, Genie can automatically acquire and save a UE Core Dump to file.

3.8. Buttons



Figure 30. Genie Button Menu

Click on a button in the above image for user.

Button



Menu: Config | Edit Config

Selecting this allows the options for the current test to be edited by opening the **Edit Configuration** dialog box. See page 4.

Button



Menu: Config | Save Config

This option allows the current test to be saved in a .GNI file. If a name has already been specified for the .GNI file selecting this will cause it to get updated, if no name has yet been specified the **Save As dialog** box will appear. See page 5.

Button



Menu: Edit | Find...

Selecting this opens the **Find dialog** box which allows you to search for a string of text in any of the signals in the current block. See page 10.

Button



Menu: Filters | Edit Filter...

Selecting this option opens the **Edit Filter dialog** box. See page 13.

Button



Menu: Filters | Save Filter

This option allows a named filter file to be saved, if the current filter is un-named the **Save as** dialog box will be displayed. See page 19.

Button



Menu: N/A | Display/Hide Timing info

This option displays or hides **timing information** in the **Signal Type** list box. The timing information is taken from the frame Number or time fields of the logged signals and is configured using **the Frame Number, Time Stamp, Ticks and Hours-Minutes-Seconds** buttons.

Button



Menu: View | Freeze Signal List

Selecting this stops the **Signal Type** list box and **Trace Output** window from scrolling while logging signals, this allows signals to be selected that would normally have scrolled out of view.

Button 

Menu: N/A | **Frame Number**

This option selects the **frame Number** field of signals to use as a timing reference when **Displaying Timing Information**.

Button 

Menu: N/A | **Time Stamp**

The **Time Stamp** option selects the time field of signals to use as a timing reference when **Displaying Timing Information**.

Button 

Menu: N/A | **Ticks**

Selecting the **Ticks** option causes **Timing Information** to be displayed as raw unmodified numbers.

Button 

Menu: N/A | **Display Hours, Minutes & Seconds**

Selecting this causes **Timing Information** to be **displayed as Hours, Minutes and Seconds**. The time is converted from Frame Ticks using the values entered in the milliseconds per kernel tick field.

Button 

Menu: Run | **Start Test**

This option **starts the current test** running. See page 20.

3.9. Help

The **Help Menu** allows access to Help files and the About GENIE.

3.9.1. About GENIE...

Selecting this option displays the **About GENIE** Box. The box displays copyright and version information. If you are reporting a problem with GENIE always quote the version number and build date.



Figure 31. Genie version

4. The Main Window of Genie Logging Tool

The Main View normally displays the **Signal Type** and the **Signal Contents**.

4.1. Signal View

The Signals View has three windows a **Signal Type**, **Signal Contents** and **Trace output** window. As shown in **Error!**
Reference source not found..

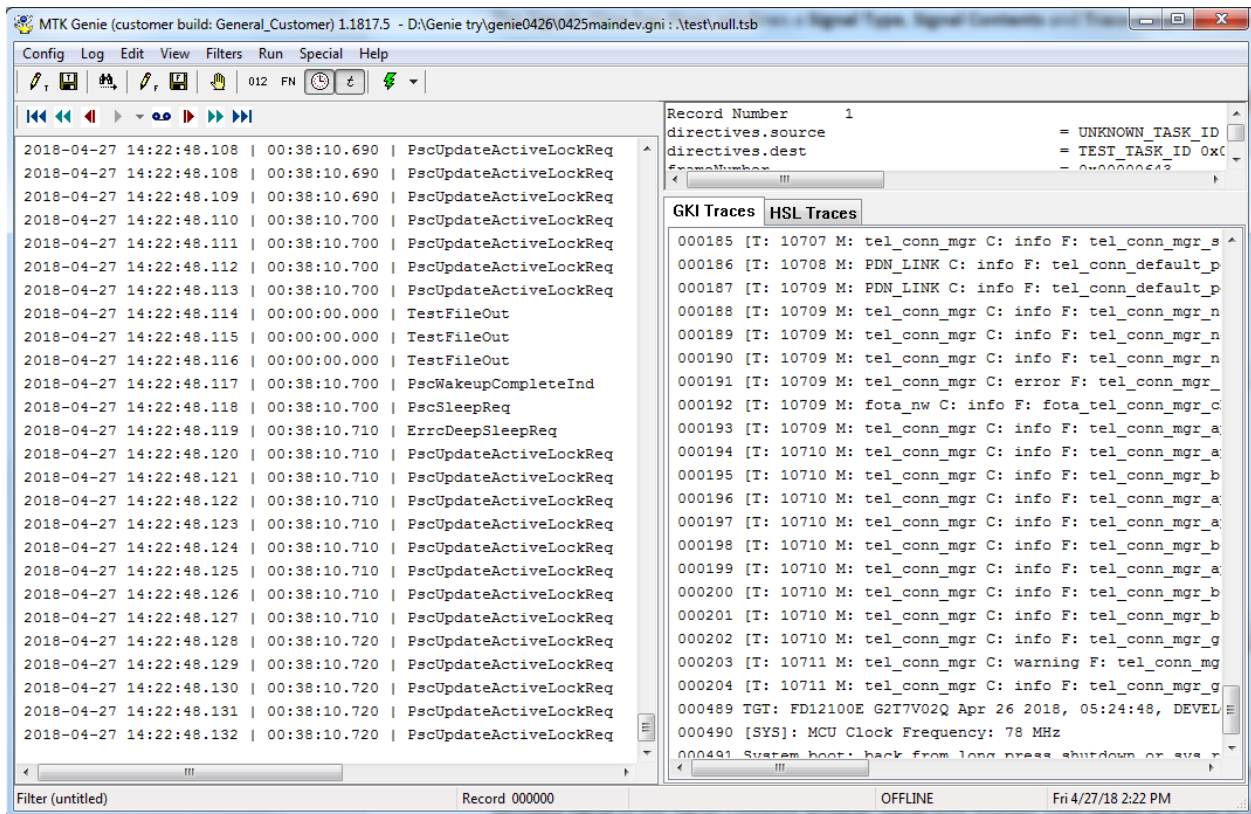


Figure 32.Signal View Window

Signal Type window

The **Signal Type** window displays the signal identifiers of logged signals. Clicking on an identifier displays the decoded signal in the Signal Contents window. Genie only displays 1000 signals at a time in this window. When viewing a log file with more than 1000 signals the **next block**, **previous block** and **goto record number** options can be used to navigate the log.

Signal identifiers can be displayed as condensed (see Show Condensed Names option in the **Edit Filter** dialog) or as normal names. For example a signal identifier of SIG_PH_DATA_IND has a condensed name of PhDataInd or normal name of SIG_PH_DATA_IND.

If a signal identifier is shown with a line through it e.g. ~~PhData~~ it indicates that this signal is not in the filter (see page 13). It also implicitly indicates that the Show Disabled Signals option is on.

The Signal Type window is also used to display timing information if it has been enabled using the **Display/Hide Timing Info** button. See page 23.

The font used in the Signal Type window can be changed using the **Signal/Task List Font** menu option.

Right clicking on a signal brings up the **Signal List popup menu**. As shown in Figure 33.

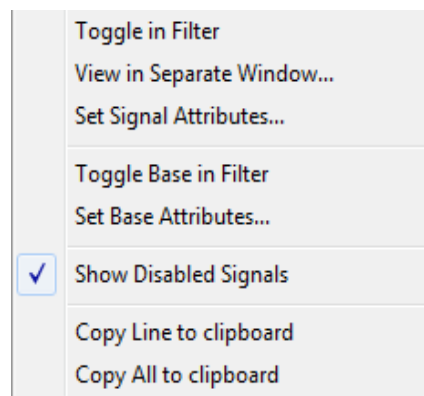


Figure 33. Signal list popup menu

The signal list popup menu allows actions to be performed on the selected signal or related data. This popup menu is accessed by right clicking on a signal within the signal list or by selecting a signal and pressing SHIFT-F10.

Toggle in Filter

This option will toggle the state of the selected signal in the filter settings. If the signal is currently enabled in the filter and the **Show Disabled Signals** option is not on, selecting this option will remove all signals of this type from the displayed signal list.

View in Separate Window...

This option allow the selected signal to be displayed in its own window, as shown in Figure 34.

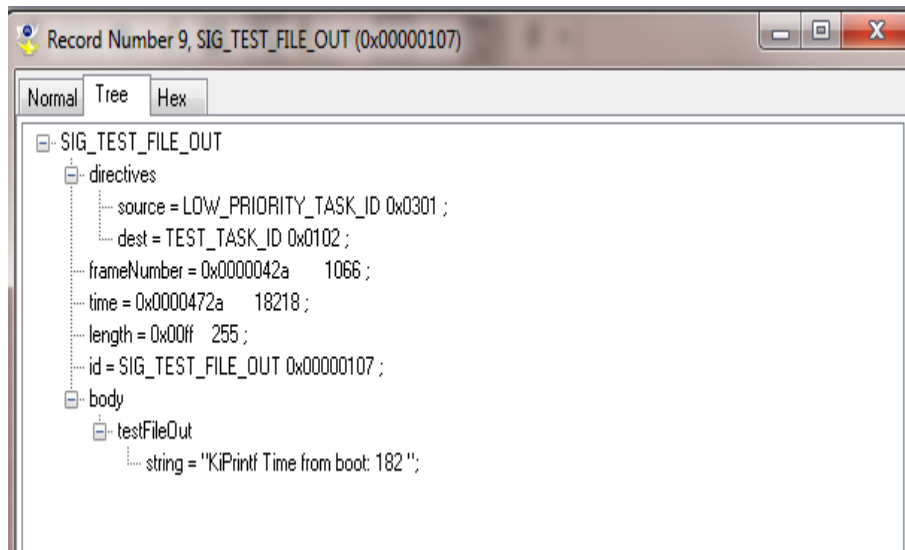


Figure 34. Single Signal dialog box

The **Single Signal** dialog is used to display one signal in its own window in **Normal**, **Tree** and **Hex** views.

Set Signal Attributes...

This opens the **Edit Signal** options dialog to allow individual display options for this signal to be changed.

Toggle Base in Filter

This option will toggle the state of all the signals in the base associated with the current selected signal using the state of the selected signal as the starting point. If the current signal is enabled then all signals in the base will be set to disabled.

Set Base Attributes...

This opens the **Edit Signal** options dialog to allow individual display options for all the signals in the same base as the selected signal to be changed.

Show Disabled Signals

This option toggles the state of the '**Show Disabled Signals**' filter option, see page 13.

Copy Line to clipboard

Copy the text on the selected line to the clipboard.

Copy All to clipboard

Copy all the text in the signal list to the clipboard.

Signal Contents window

The **Signal Contents window** displays the decoded contents of the currently selected signal.

The format of the decoding of the signal data is controlled by the options given on the **Display Options Property Sheet** and the **Number Formats dialog** (see page 13). These options control how much data from the signal is displayed and in what number formats to display that data.

The following output would be produced for the following options **No Commands** - OFF, **No Record Numbers**- OFF, **No Body** - OFF, **No Types** - ON, **No Arrays** - OFF, **enum** HEX and NAME, **Int8** DEC, **Int32** HEX and DEC and **Squeeze Length** set to 40. See Figure 35.

```
Record Number    126
directives.source      = TASK_BL_ID 0x052e ;
directives.dest        = DM_NVM_TASK_ID 0x0407 ;
frameNumber          = 0x000003be          958 ;
time                  = 0x00005313          21267 ;
length                = 0x000a          10 ;
id                    = SIG_ANRM2_READ_DATA_REQ 0x00090a01 ;
body.anrm2ReadDataReq.sourceTaskId = TASK_BL_ID 0x052e ;
body.anrm2ReadDataReq.commandRef   = 0x3004 12292 ;
body.anrm2ReadDataReq.name         = NRAM2_KNOWN_SIM_DATA 0x0134 ;
```

Figure 35.Signal Contents window

The Record Number line can be removed by setting the **No Record Numbers** option to ON.

The first column displays the types of the fields in the signal, to not display the type set the **No Types** option to ON.

The second column displays the field names for the decoded signal. The number of characters displayed between the start of this column and the equals' sign of the data column is controlled by the **Squeeze Length** option.

Enabling the **No Body** option will disable decoding of all the data in the body field of the signal.

The final column contains the decoded data from the selected signal, the format of this data is controlled by the options in the **Number Formats dialog**.

4.2. Logging Playback Toolbar

The log playback toolbar provides buttons that can be used for normal navigation of the log as well as enabling and controlling log playback mode. As shown in Figure 36.



Figure 36.Log playback toolbar

Playback mode allows the selected signal to be automatically advanced based on the difference in GKI timestamp between the current signal and the next signal or advanced at a constant rate.



Goto start of log

This button selects the **first record** in the log.



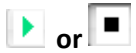
Previous block

This button loads the **previous 1000 record** block or jumps to the start of the log if the current block is the first block in the log.



Previous record

This button selects the **previous record** in the log.



Play/Stop buttons

This button is only enabled when the **playback mode button** is down (see below). This button starts and stops log playback as well as allowing selection of playback speed from the drop-down menu. The available speeds are:

As fast as possible

Advance to the next signal as quickly as possible.

1 Record every X ms

Advance one record every X ms (currently either 50 or 100).

Real time

Advance at the rate given by the difference in GKI tick time between this record and the next.

1/X real time

Advance at 1/X real time (currently 1/2, 1/5 or 1/10 real time).

The drop down menu also provides an option for all signals to be forwarded to Passthru Task.



Playback mode button

This button controls whether the log is being viewed in standard or playback mode. If the button is down the log is in playback mode. When playback mode is enabled the **play/stop** button is enabled.

4.3. Trace Output Window

The Trace Output window is used to display the contents of the Test File Out signal. This signal is used to transport strings which have typically been produced by printf(). See Figure 37.

GKI Traces	HSL Traces
000136 KiPrintf Time from boot: 309	
000137 KiPrintf Time from boot: 310	
000138 KiPrintf Time from boot: 311	
000139 KiPrintf Time from boot: 312	
000140 KiPrintf Time from boot: 313	
000141 KiPrintf Time from boot: 314	
000142 KiPrintf Time from boot: 315	
000143 KiPrintf Time from boot: 316	

Figure 37. GKI Traces Output Window

To enable this window use the **Trace Output** option in the **View** menu. Test File Out signals will also have to be enabled in the Filter for them to be displayed.

Double clicking on a string in the Trace Output window will jump to the associated signal in the **signal list window**. This functionality is only available when no test is running i.e. when viewing a log or after a test has stopped.

4.4. Status Bar



Figure 38. Status Bar

The Status Bar provides progress and general information about the current test. It can be hidden/displayed by toggling the **View | Show Status Bar** menu item. The contents generally change depending on whether the main window is in Tasks or Signals view.

Filter c:\users\mtk15191\appdata\local\temp\genie_temp\glpdf\

The **Main Window** is displaying the **Signals View**, this panel displays the current filter file name.

Record 000004

The **Main Window** is displaying the **Signals View**, this panel displays the record number of the currently selected signal. Clicking on this panel will open the **goto record number** dialog.

TestFileOut

The **Main Window** is displaying the **Signals View**, this panel displays the signal name of the currently selected signal. If the signal name has '(Docs)' on the end of it then clicking on the status bar panel will display the signal documentation for the associated signal, this is only available when the test is OFFLINE.

OFFLINE

This panel displays the current state of GENIE:

ONLINE	A test is running.
ONLINE+	A test is running and more than 1000 signals have been received (signal list only holds 1000 signals at a time).
OFFLINE	There is no test activity.
BATCH X of Y	GENIE is in Batch mode running script X of Y.
CHK X of Y	GENIE is in Batch mode running script X of Y with signal checking.
ONLINE CHK	GENIE is checking a single script automatically.
OFFLINE CHK	GENIE is checking a single script manually.
COMP	GENIE is compiling a single script.
COMP X of Y	GENIE in Batch mode compiling script X of Y.

Fri 8/11/17 11:17

This panel displays the current Day, Date and Time as set on the PC.

4.5. Rrc and Nas Message Decoder

If you want to check the RRC and ASN message, you can select the **Rrc and Nas Message Decoder** option. As shown in Figure 39.

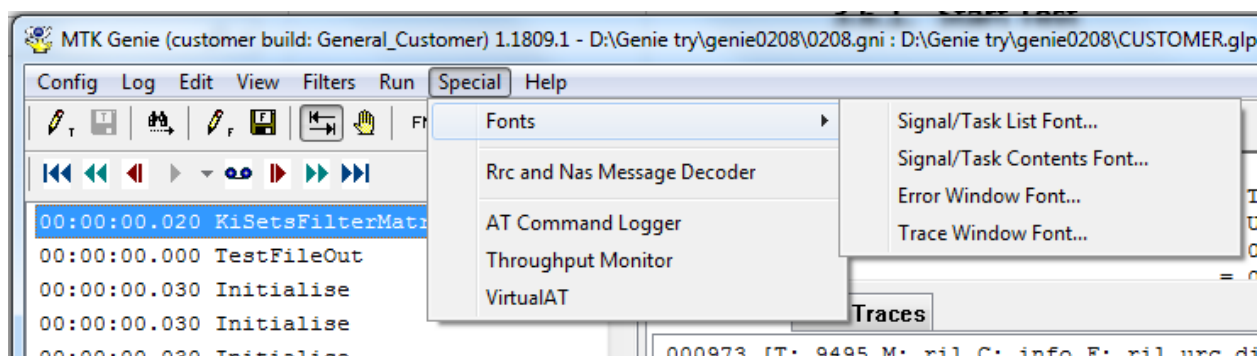


Figure 39. Rrc and Nas Message Decoder

Selecting the “**Rrc and Nas Message Decoder**” option. A new dialog will pop up. Allowing selection of view option from the drop-down menu. As shown in **Error! Reference source not found..**

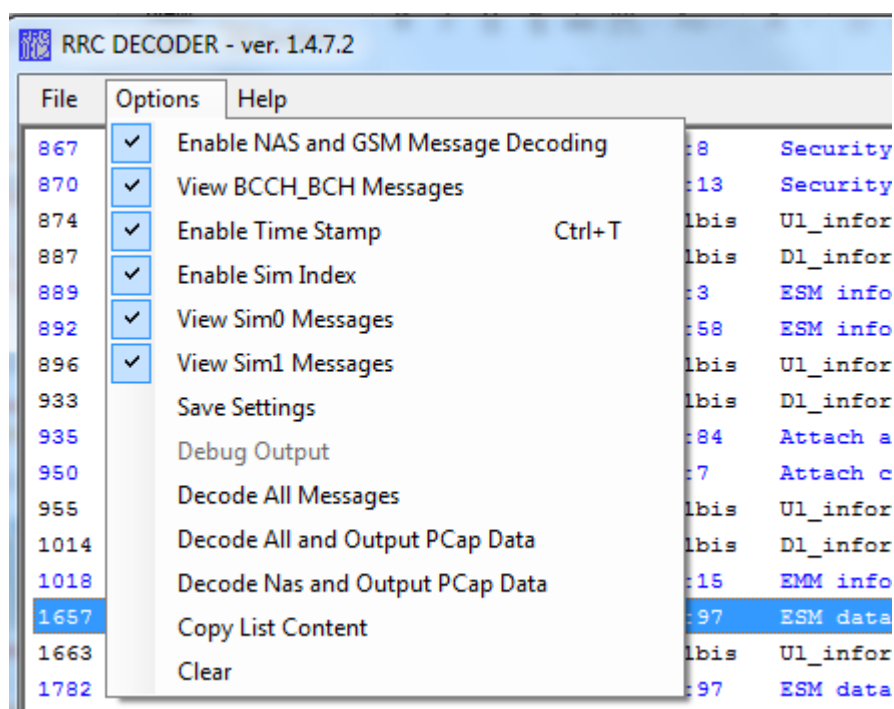


Figure 40. RRC ASN.1 Decoder

RRC decoder offline mode (playback log)

- 1) Open existing *. GLP log.
- 2) Select the playback mode from the playback tool
- 3) Select the **playback speed** and **Send to PassThru and RC GKI Port**.
- 4) Goto the start of log.
- 5) Click the play button . See Figure 41.
- 6) Auto play the ASN messages. See Figure 42.

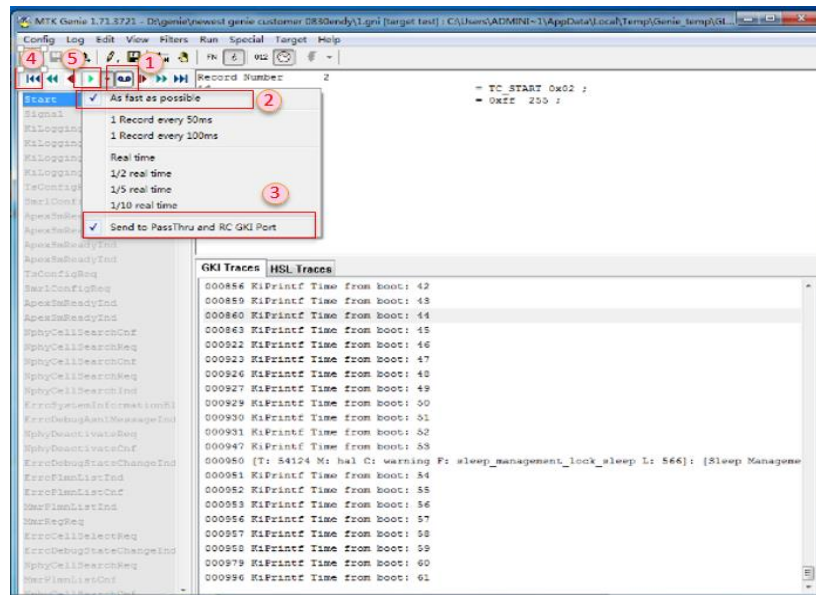


Figure 41. The steps of playback log

RRC Decoder online mode (real time)

1) Selecting the “integrate RRC and ASN message decoder” option, Click “OK”. A new dialog will pop up. Allowing selection of view option from the drop-down menu. As shown in **Error! Reference source not found.** and **Error! Reference source not found.**

2) Click “Start test” .

3) Auto play the ASN messages. See Figure 42.

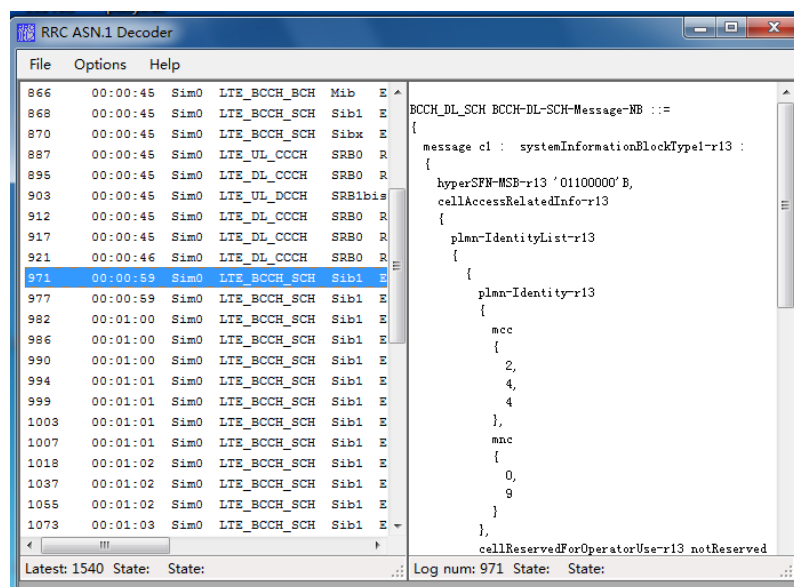


Figure 42. Example of message and its decoded form

Note: if some items can’t be decoded. As shown in Figure 43.

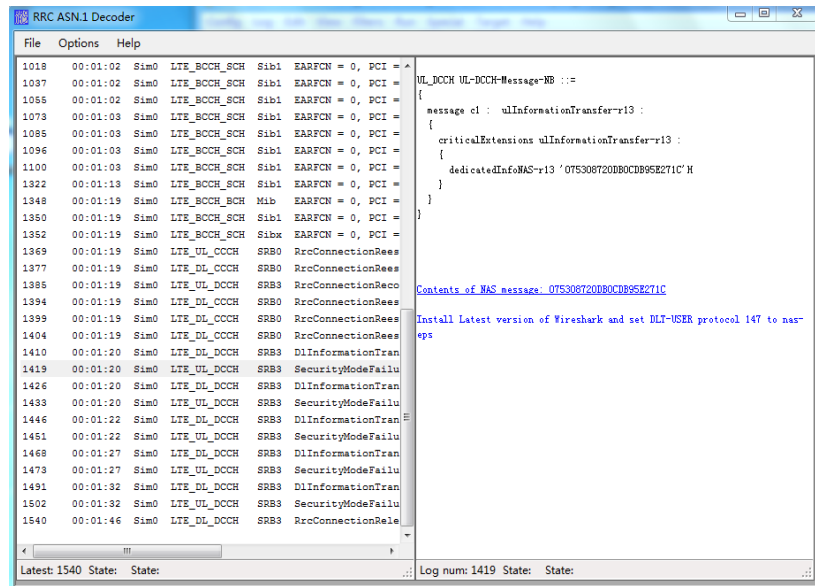


Figure 43. Contents of NAS message

Please installing the latest version of Wireshark from <https://www.wireshark.org/download.html>.

Follow these steps to configure WireShark.

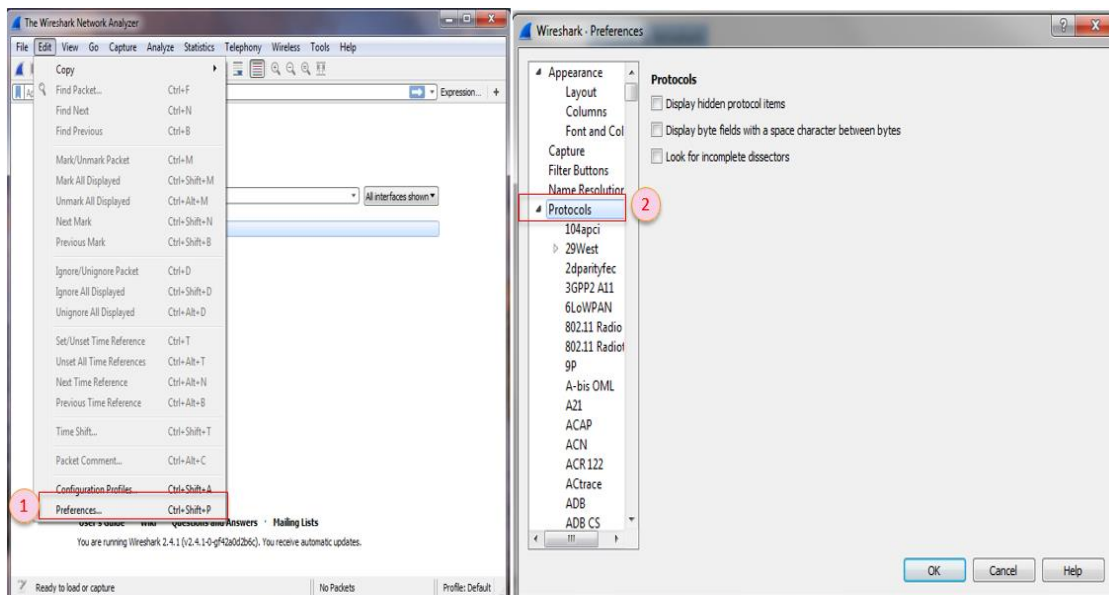


Figure 44. Configure WireShark(1)

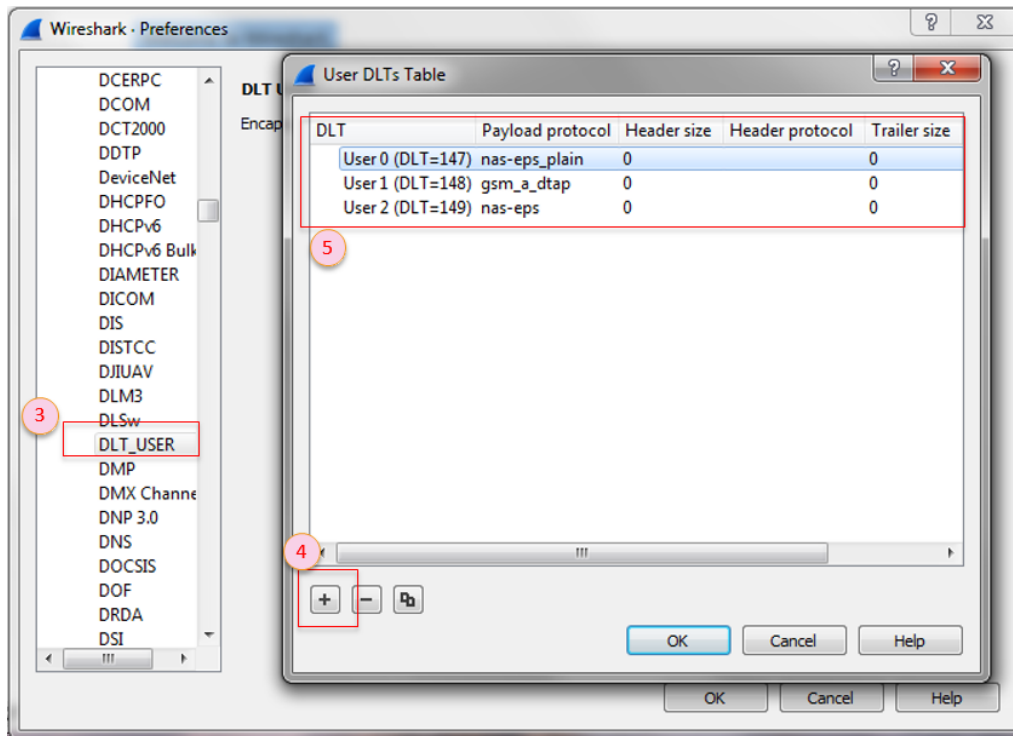


Figure 45.Configure WireShark(2)

4.5.1 Extract Pcap Data

You can extract Pcap Data by the RRC DECODER. The steps:

- 1, Replay log and display the ASN/NAS message
- 2, RRC DECODER Options menu select **"Decode All and Output Pcap Data"**

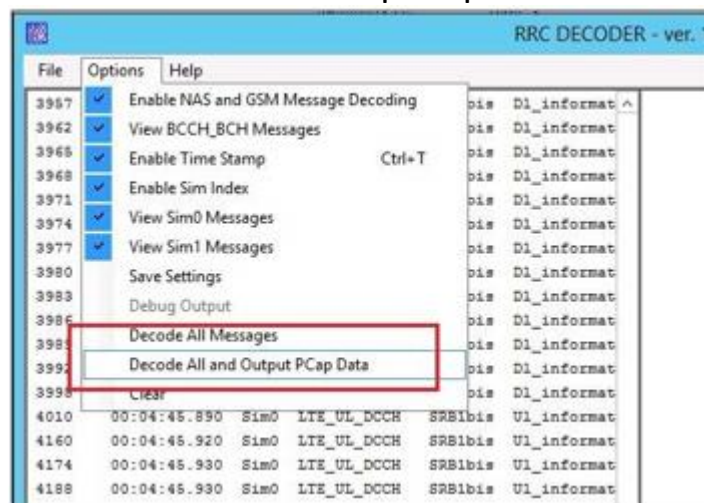


Figure 46.select "Decode All and Output Pcap Data"

3, Click "Extract Pcap Data"

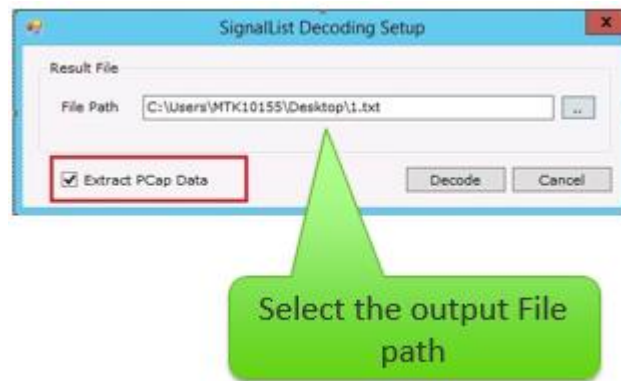
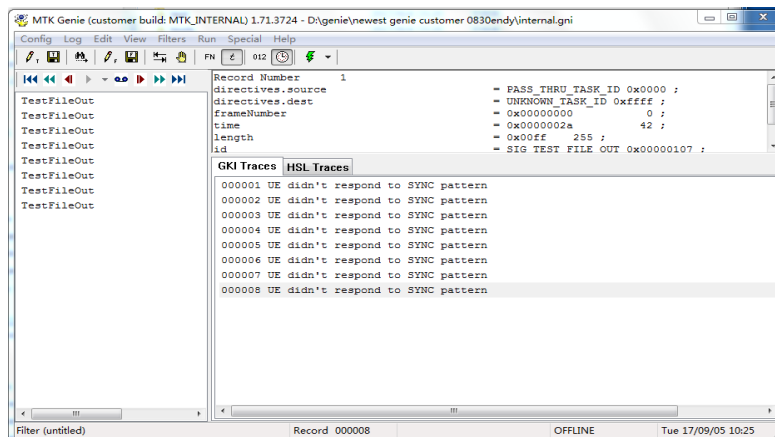


Figure 47.Extract Pcap Data

4, after decode completed. Open file to see the Pcap Data.

4.6. Q&A

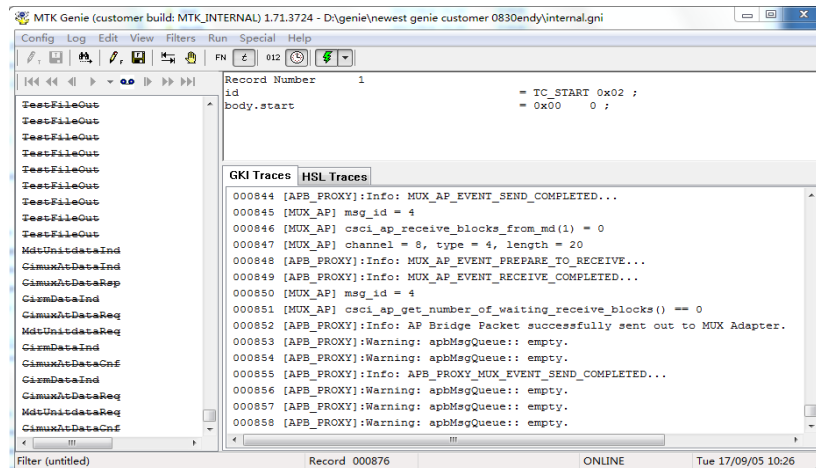
Q1: GKI Traces display : UE didn't respond to SYNC pattern.



A: Please check the following points (right or not):

1. Reset Target.
2. Check the GKI com port, Baud rate.
3. Check the HSL com port, Baud rate.

Q2: the signals have a line through it .



A: Please check the following points:

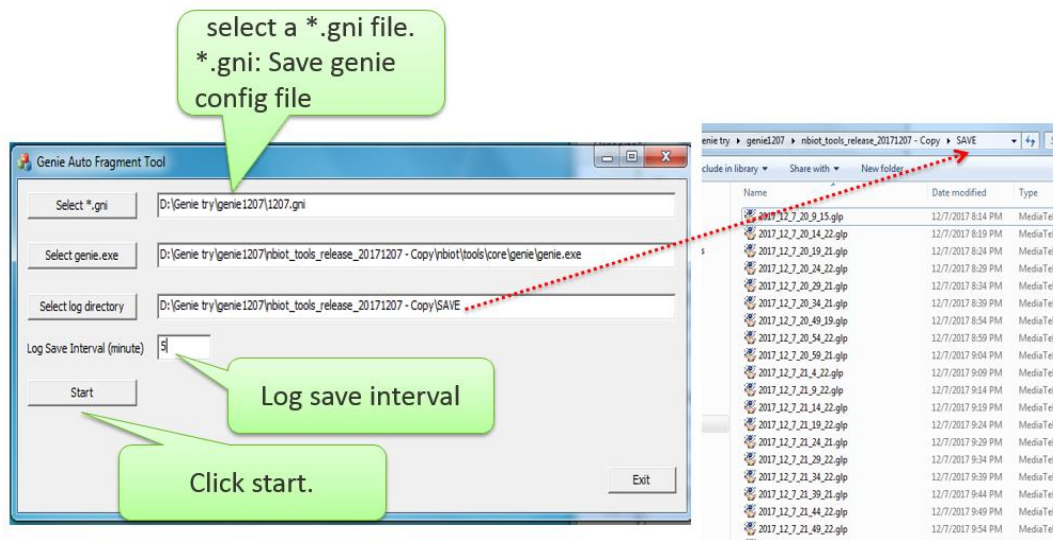
1. Check the filters which contain this signals set highlight.
2. Check the edit filters>format>Show Disabled Signals be selected .

Q3: Open a log but fail to find the useful log which saved to file. Lose it?

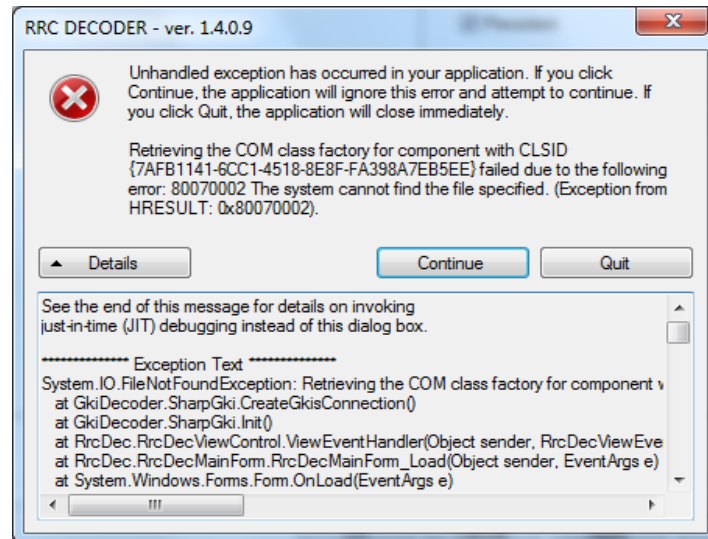
A: One block contain 1000 record, if you capture log more than 1000 record, please click this button jump to the next block.

Q4: Taking a long time to capture log ,and save the .GLP file is too large.

A: In the path to genie folder: nbio_tools_release_xxx \ nbio \ tools \ core \ genie has a GenieFragmentTool.exe tool, you can save log at intervals.



Q6: If you open Rrc and Nas message Decoder displays the following pop-up.



- 1, Shutdown GKI server
- 2, Click the GKIS.exe from path:
nbiot_tools_customer_release_\nbiot\tools\core\gkis.
- 3, Open Rrc and Nas message Decoder again.

