

MEDIATEK

# Genie Logging Tool



# Introduction

- GENIE: **GENeric IntEgrated**.
- Genie is a Windows application which provides logging for the nbiot 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 stream.
  - Genie uses TeraHsl application for all HSL stream capture and display.
    - By using stand-alone TeraHsl application, one can capture HSL data only.

# Installation for stand-alone operations

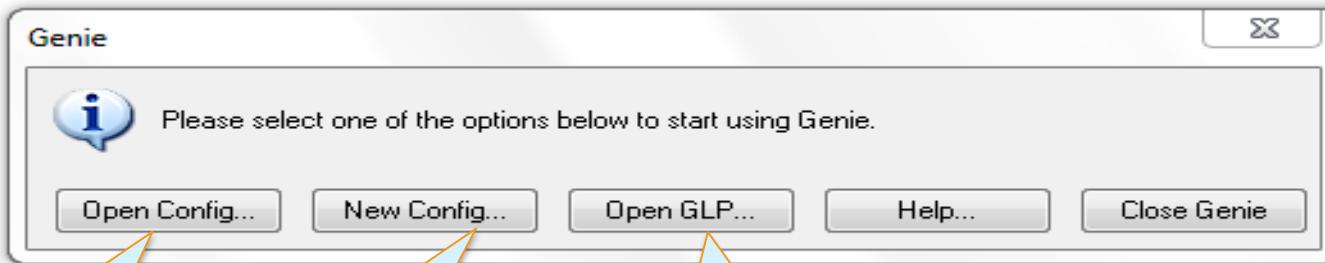
- Copy and unzip to a local drive.
- **IMPORTANT:** Do not use on a network drive as TeraHsl is a C# application for which Windows network drive restrictions can prevent its execution.

# Winmux tool

- Winmux3 tool
- Refer to:[Tools\\_WinMux3\\_User\\_Manual.pdf](#)
- Because of adding winmux3 tool, please reinstall the com0com driver to support the use of winmux3 tool and VirtualAT of genie logging tool.
- The latest com0com driver installation path:  
`nbiot\tools\core\genie\tools\com0com\install.bat`.
- The winmux3 tool path: `nbiot\tools\core\genie\tools\WinMux`.

# Running Genie – \*.gni configuration file

- After unzip, Genie can be started from:
  - \nbiot\tools\core\genie\genie.exe
- A number of **key\_configurations** are needed before connecting to a target:
  - **GKI/HSL COM Port and Baud rate.**
  - Whether to tick **Integrate RRC and ASN message decoder.**
  - UE databases. These are provided with the build of a UE:
    - **Signal database \*.dec** for decoding GKI data and HSL data.
- These configurations are stored into a configuration file (\*.gni). The user can have multiple of the \*.gni for different configuration needs.
  - The last configuration file \*.gni used will be loaded when Genie starts. This is convenient if the same environment is used. All the settings specified as part of 'New config' setup will be saved that way.
  - Please note that the last configuration (or previous) file may contain references to file paths which may no longer be accessible. In this case the user needs to update the configuration(s) and save via **toolbar button** 
- If starting Genie for the first time, then the following dialog provides some options:

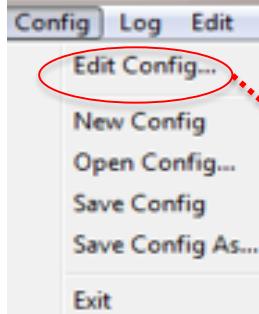


Select an existing \*.gni

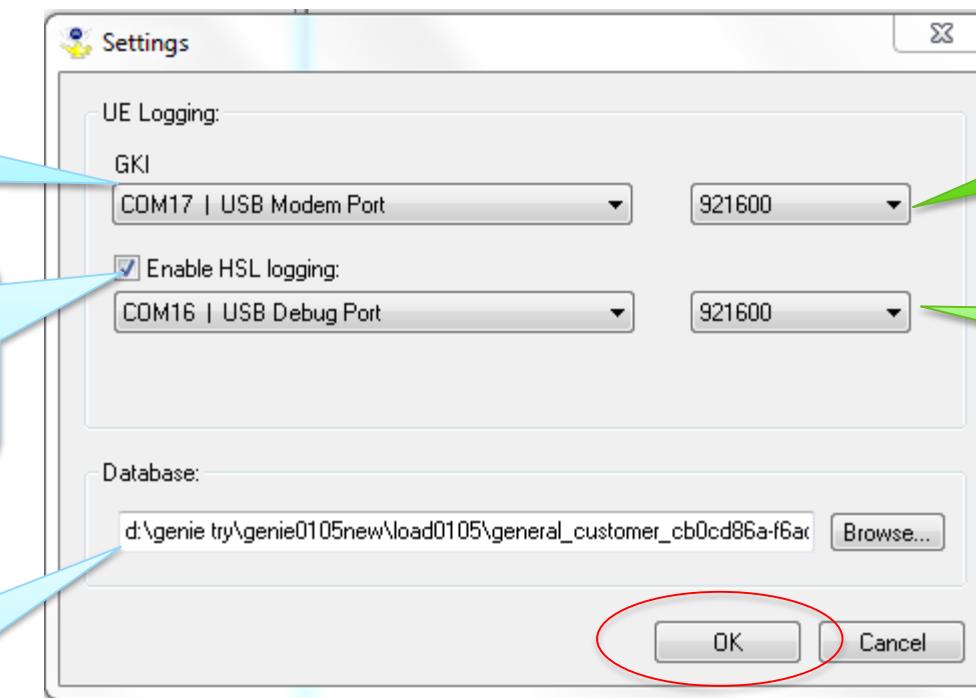
Create new one  
\*.gni with some default values

Open an existing log package

# Genie Configuration



- The **Edit Configuration** dialog box allows the user to configure the parameters for a genie test.



Select GKI COM Port

Select HSL COM Port when click Enable HSL logging

Select Database .dec format

GKI Baud rate

HSL Baud rate

Complete configuration

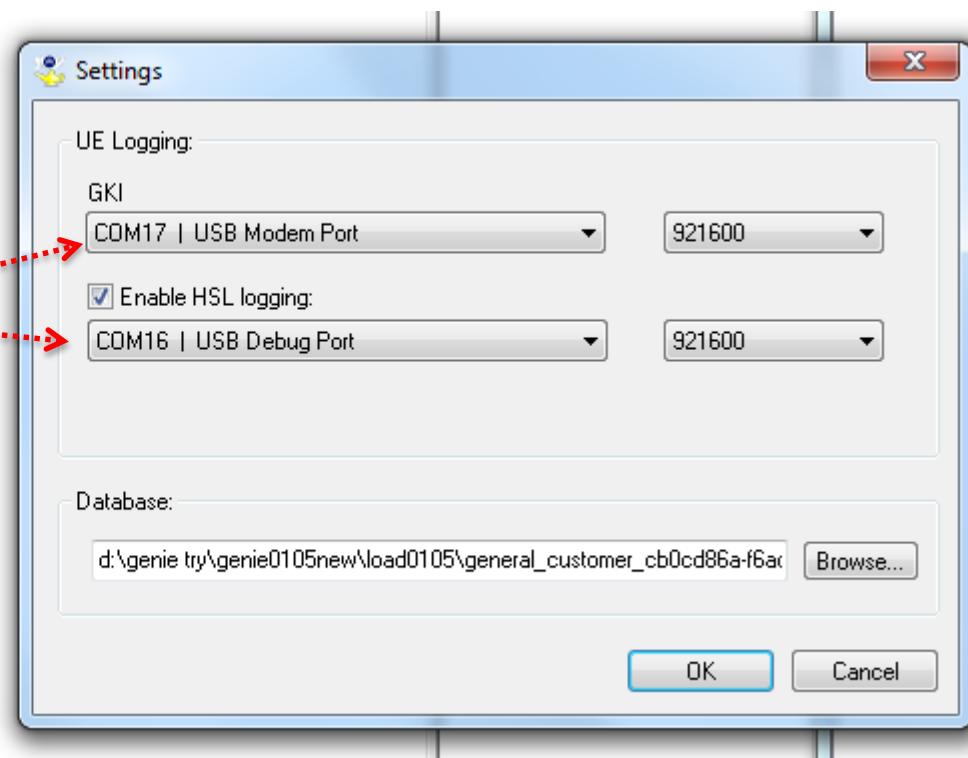
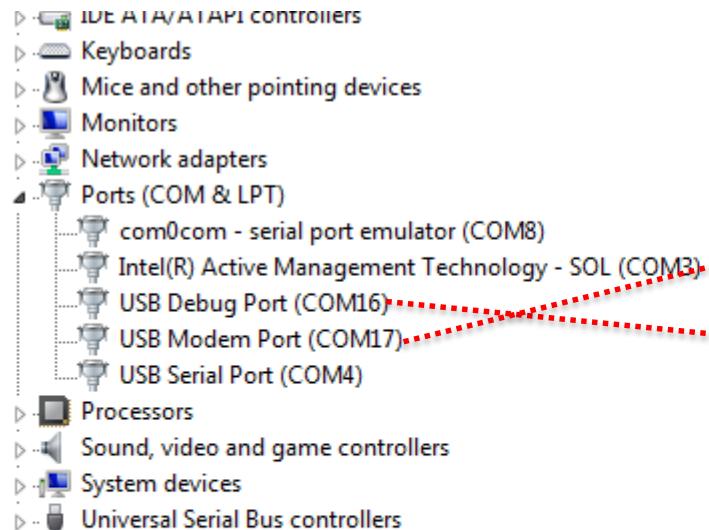
# Select GKI and HSL com port

Base on USB driver

GKI com Port corresponds to USB Modem Port;

HSL com Port corresponds to USB Debug Port.

\* .dec file from Target Software Load Package.

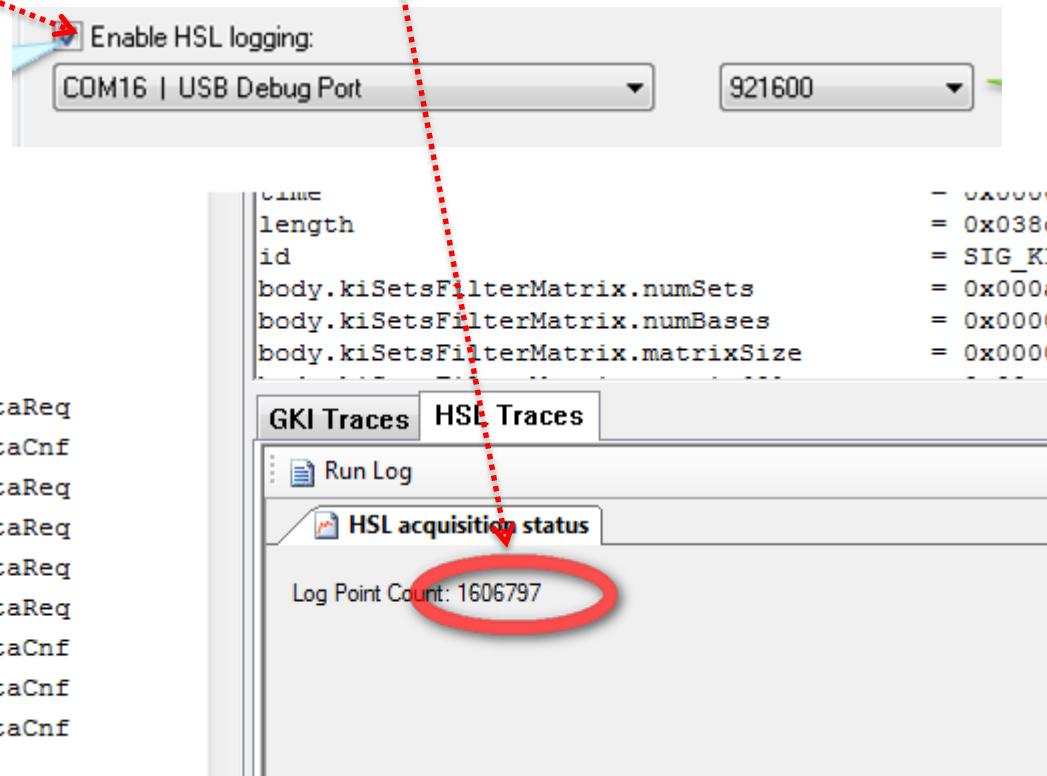


# Enable HSL Logging

If you need the HSL log, please follow the steps.

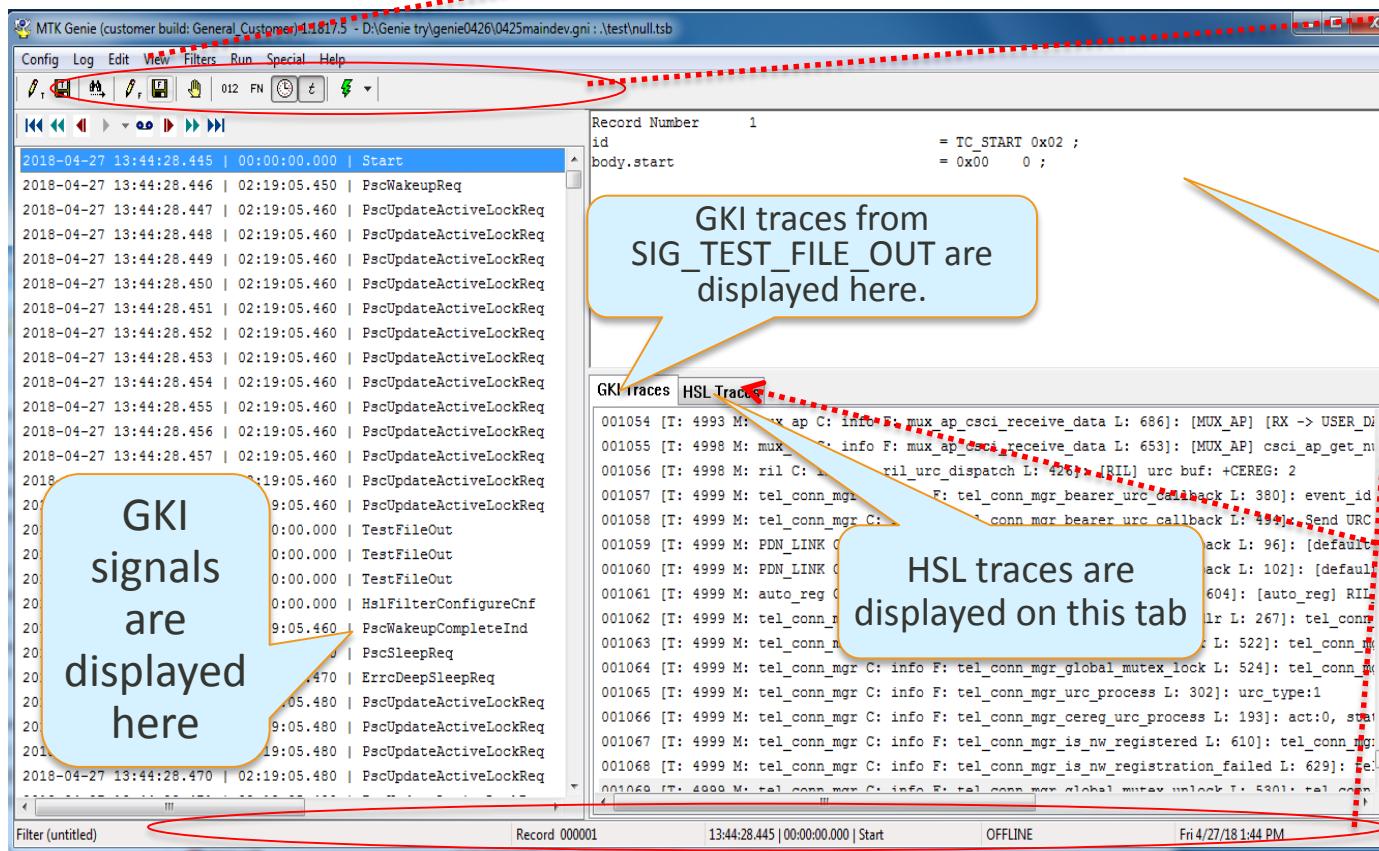
1, Tick the Enable HSL logging.

2, Increased number of log points for HSL acquisition status When Genie is running.

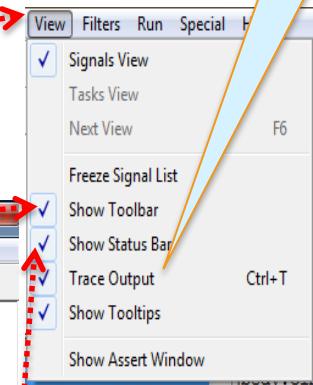


# Running Genie – capturing a log

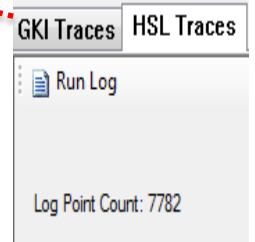
- After configurations are completed (and saved), the logging starts by clicking on or key presses Ctrl-F9. Pressing again will stop logging.
- If the UE is **running** and ready to connect, GKI/HSL will be captured and displayed.



'Trace Output' must be enabled to see GKI/HSL traces.



Content of GKI signals is displayed here.



# Main menu

- 1. config
- 2. Log
- 3. Edit
- 4. View
- 5. Filters
- 6. Run
- 7. Special
- 8. Buttons
- 9. Status Bar
- 10. Miscellaneous



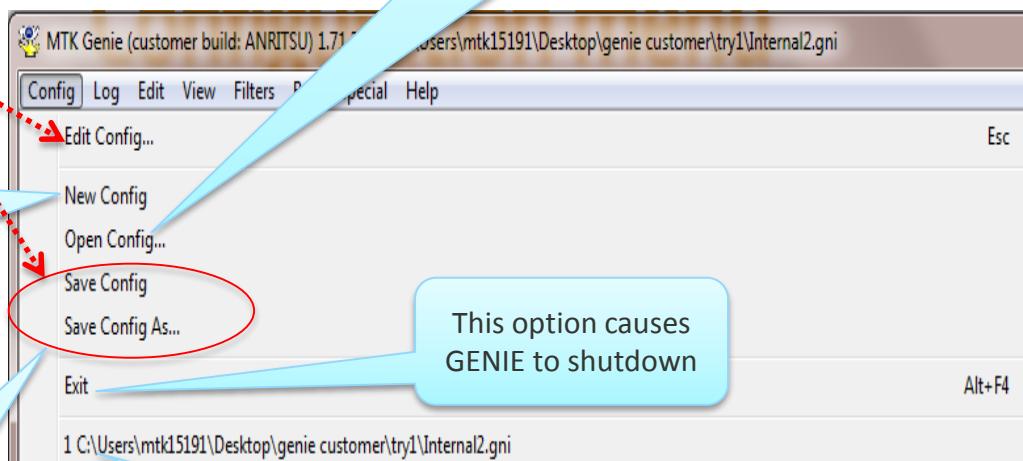
Genie main Menu

# Configuration menu

Button



Selecting this creates a **new** test and opens the box so that the new test can be configured



This option allows the current test to be **saved** in a .GNI file.

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

Selecting this allows you to **open** a previously saved test environment from a .GNI file.

This option causes GENIE to shutdown

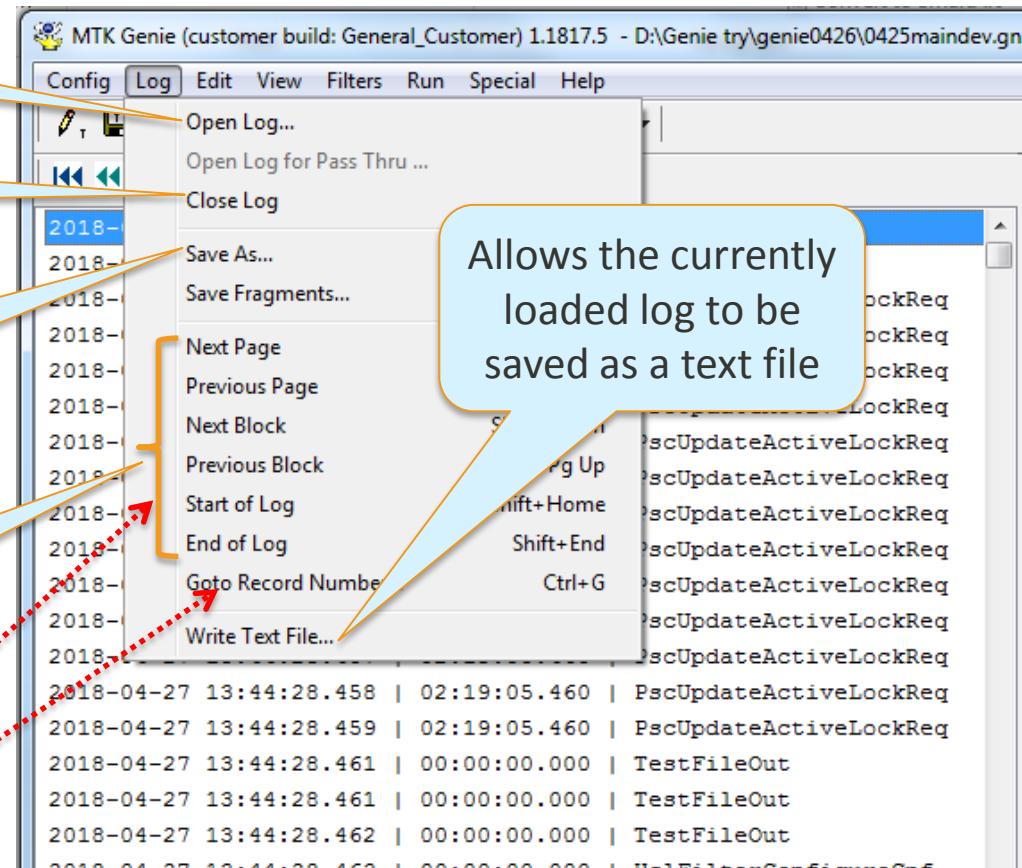
# Log menu

Select an  
existing \*.glp

## Close an existing Log

Save log as \*.GLP  
format . Only after  
log capture has  
stopped.

Display the signals  
in the Signal Type  
list box.



# Save log Fragments

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

Steps:

- 1), Click Enable Fragments.
- 2), Select directory for acquisition files
- 3), Name for captured files.
- 4), Set interval minutes.

Note: Completed a long test, please cancel the setting.

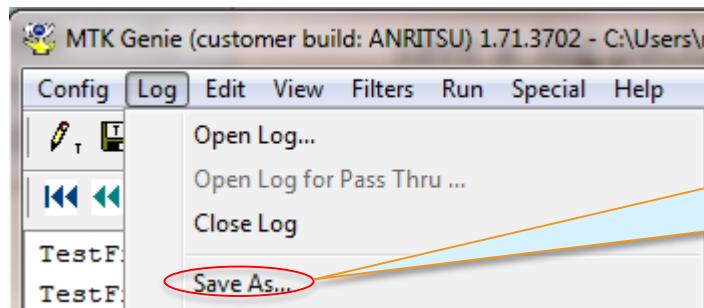
The screenshot displays two windows related to log fragment saving. On the left is the 'Fragments Settings' dialog box, which contains the following fields:

- Log Fragments** section with a checked checkbox for **Enable Fragments**.
- Root directory for acquisition files**: A text input field containing the path **d:\genie try\genie0427\loginternal**, with a **Browse...** button to its right.
- Base name for captured files:** A text input field containing **log0427\_1**.
- Acquisition interval in Minute**: A dropdown menu set to **3**.

A red arrow points from the top of the 'Log' menu in the main window to the 'Save Fragments...' option in the 'Fragments Settings' dialog's menu bar, which is also underlined.

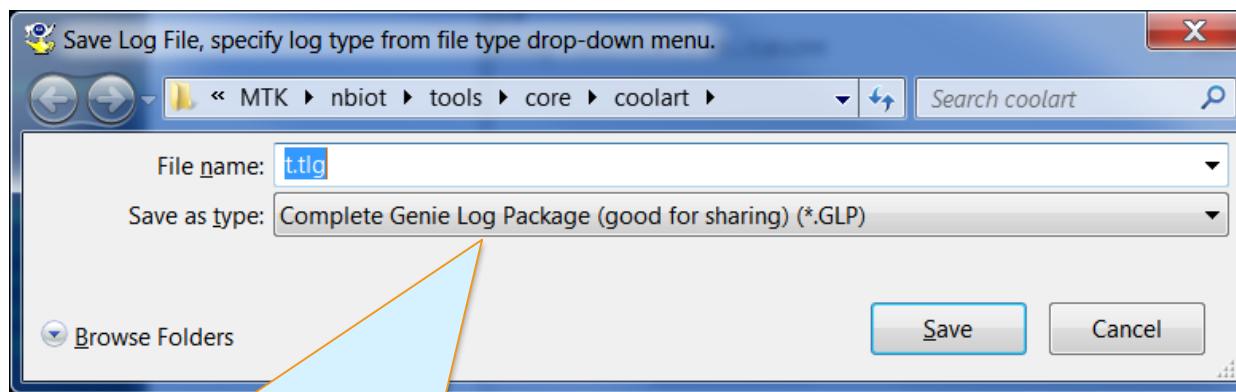
On the right is a Windows File Explorer window showing the contents of the directory **D:\genie try\genie0427\loginternal**. The list shows several files named **log0427\_1.glp** through **log0427\_9.glp**, each with a timestamp indicating it was created on April 27, 2018, at various times between 9:59 AM and 10:21 AM.

# Quick Genie log package creation for sharing with others



1

Only after log capture has stopped (UE disconnected), destination log file name can be specified.



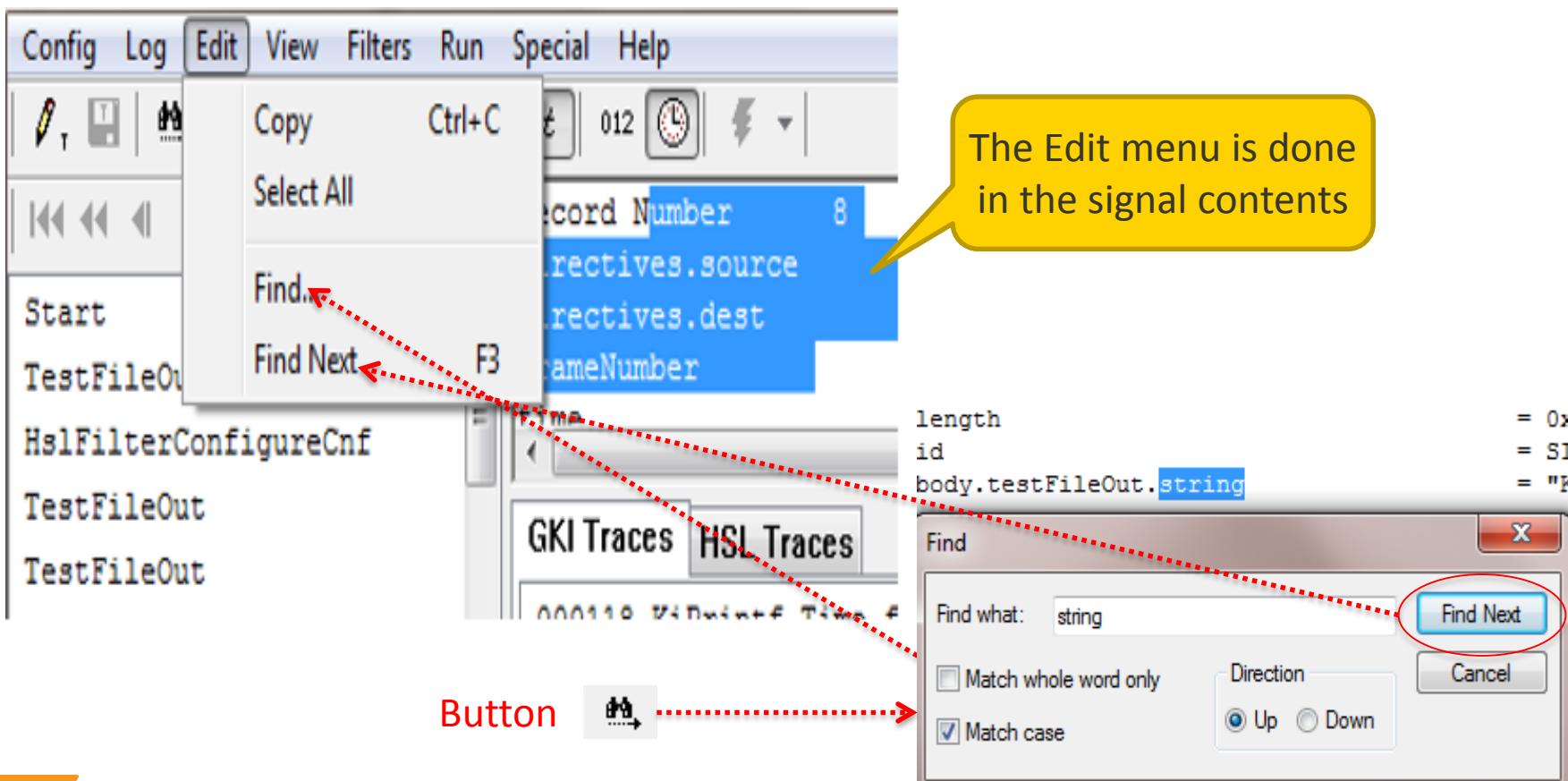
2

This type of package (\*.glp) will include any GKI log file (\*.tlg) and HSL log files (\*.hslog/hslog2)

- Follow these steps to save a log package which will put into one Genie \*.glp all the necessary GKI/HSL logs/decoders applicable.
- Share this single \*.glp with other users.
- By creating a Windows application association with \*.glp, it is then possible to double-click on these files to open them. Alternatively, use the Log/Open menu option.

# Edit menu

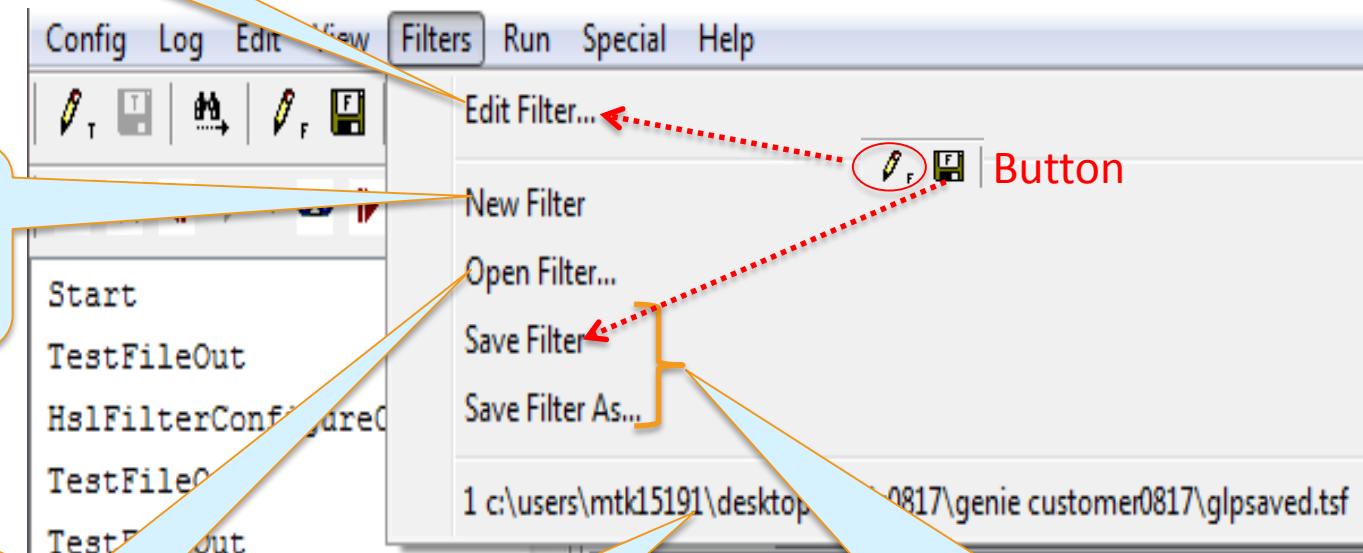
- The **Edit Menu** allow you to copy text from any of the output windows (e.g. Signal Contents) into the clipboard.
- You can also search the signals for a string using the **Find** and **Find Next** menu items.



# Filters menu

Selecting this option opens the **Edit Filter** dialog box. See the next slide for more details.

The **Filter Menu** allows .TSF filter files to be Edited, Created, Opened and Saved.



Selecting this option creates a new filter and opens the **Edit Filter** dialog box.

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

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

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.

# Edit Signal Filters(1)

**Note:** This menu(Edit Filters option) in order to help you choose to see part of the log or all from the target, and can not decide the target only spit out log from this filter. If you want to edit filter for target, Please refer to slides page 23/24.

The screenshot shows the 'Signal Filter - glpsaved' dialog. On the left, a list of 'Signal Bases' is shown with columns for Id and Name. The bases listed are: 000000 SYS\_RESERVED, 000100 SYS, 030300 L1UT, 030900 CPHY, 030A00 UPHY, 031000 ECPHY, 031100 ESPHY, 031200 EUPHY, 031300 E1CD, 031400 E1IT, 031600 E1TEST, 031800 NPHY, 031900 N1CD, and 031A00 N1TST. Below this list are two buttons: 'Set' and 'Clear'. To the right of the bases is a section titled 'SYS\_RESERVED\_1 Signals, sorted by Id (ascending)' which lists two signals: 0x000000 NON\_SIGNAL and 0x000001 NoMoreSignals. Below this section are two groups of buttons: 'Highlighted Signals' and 'All Signals', each with 'Set Attrib...', 'Clear Attrib...', 'Set', and 'Clear' buttons. A small 'Options' dialog is also visible at the bottom left.

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

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

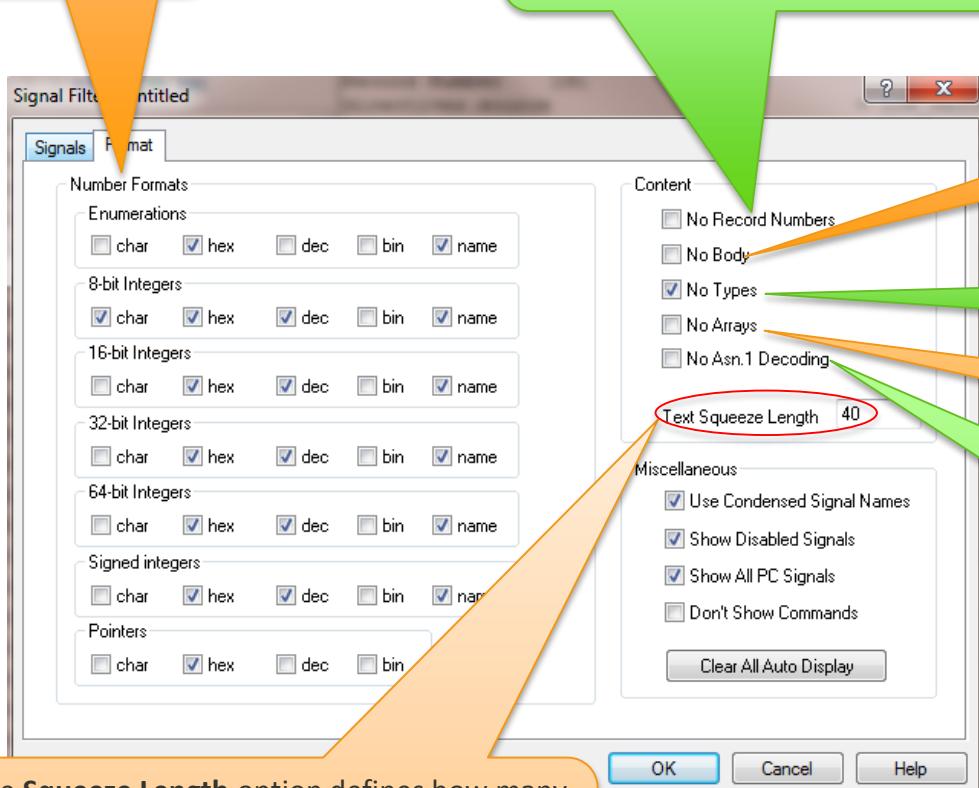
**Clicking on this button disables all the signals in all the bases.**

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

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

# Edit Signal Filters(2)

Allows the user to specify how a Basic Data types are displayed as text in the **Signal Contents** window



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

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

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

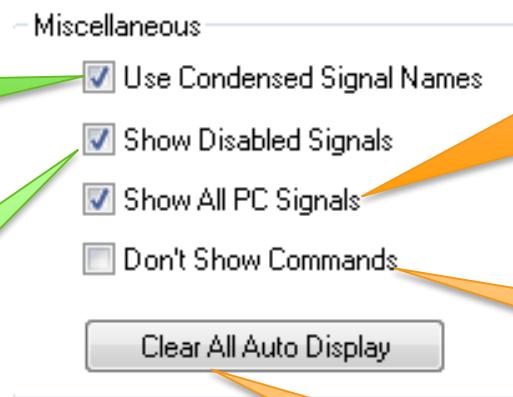
If this is selected arrays will not be decoded e.g. array data with 5 entries would be displayed as data[0..4].

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.

# Edit Signal Filters(3)

If this option is enabled the signal name in the **Signal Type** list box is shown in condensed format.



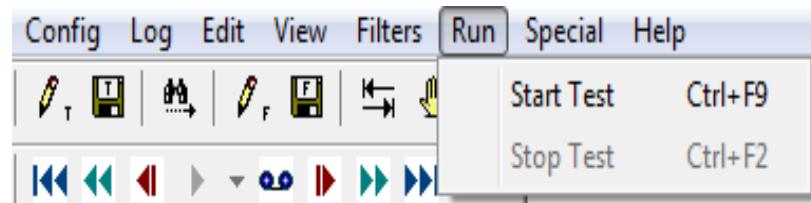
If this option is enabled any signals which are logged but are not in the filter will be listed in the **Signal Type** list box but the signal name will have a line through it e.g. ~~AlsISimRemoved~~

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.

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

The **Clear All 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.

# Run menu



## Start Test



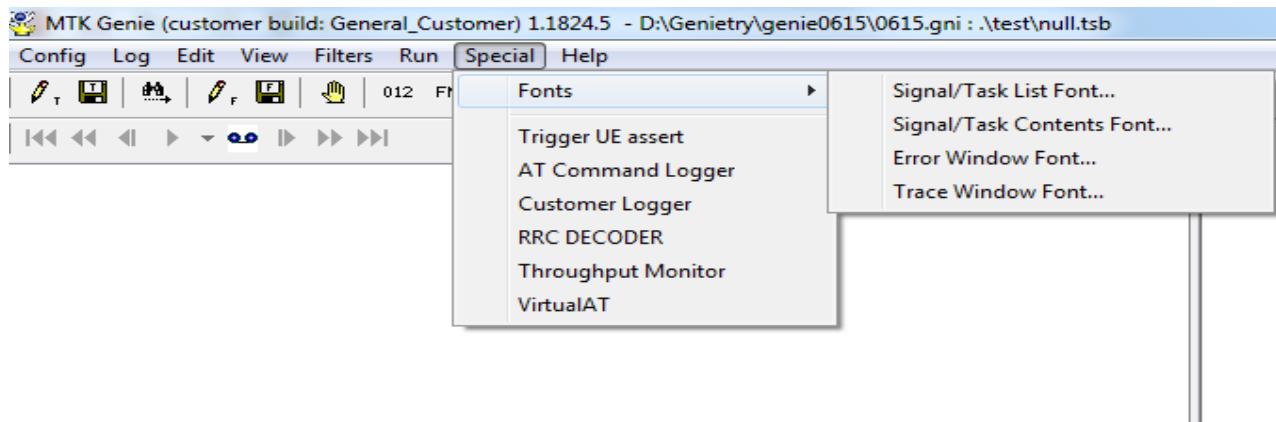
This option starts the current test running. Hot key: **Ctrl + F9**.

## Stop Test



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

# Special menu



## 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 Font...

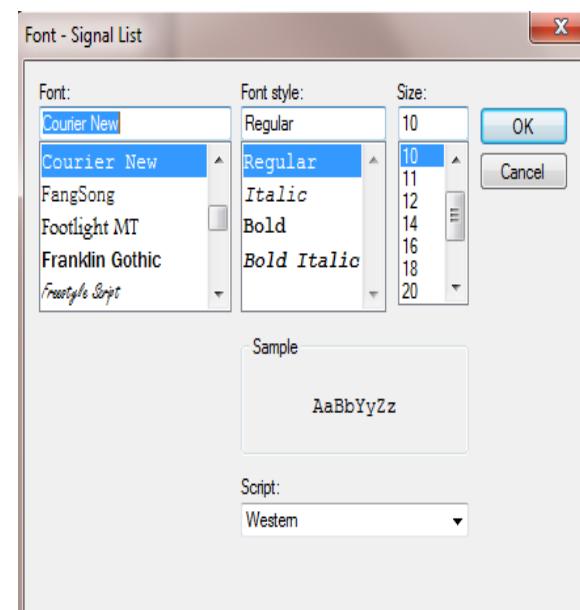
Selecting this opens the **Select Font dialog** box so that the font used in the **Signal Contents** and PC Task Out edit boxes can be changed.

## 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.

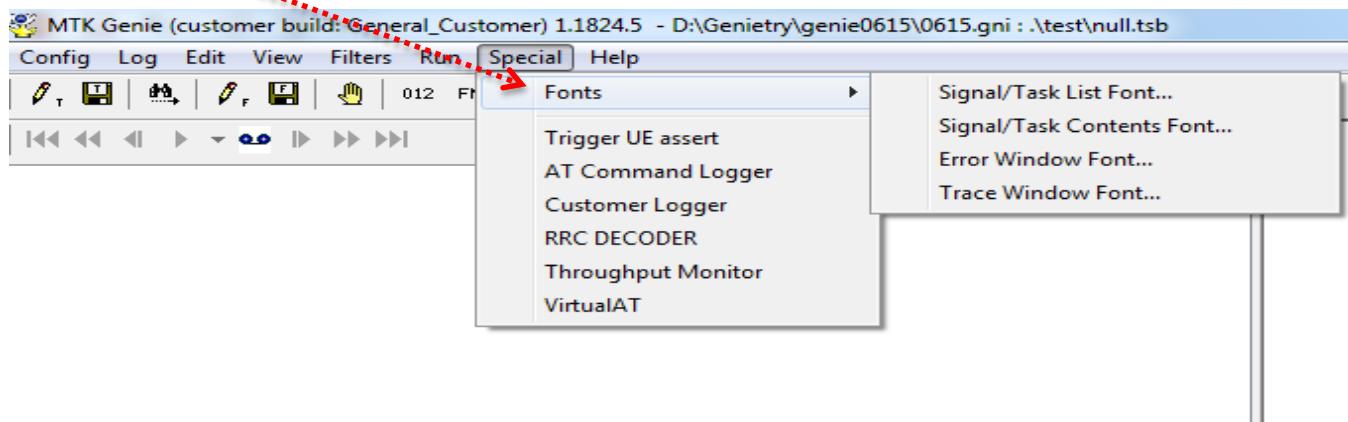
## Trace Window Font...

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

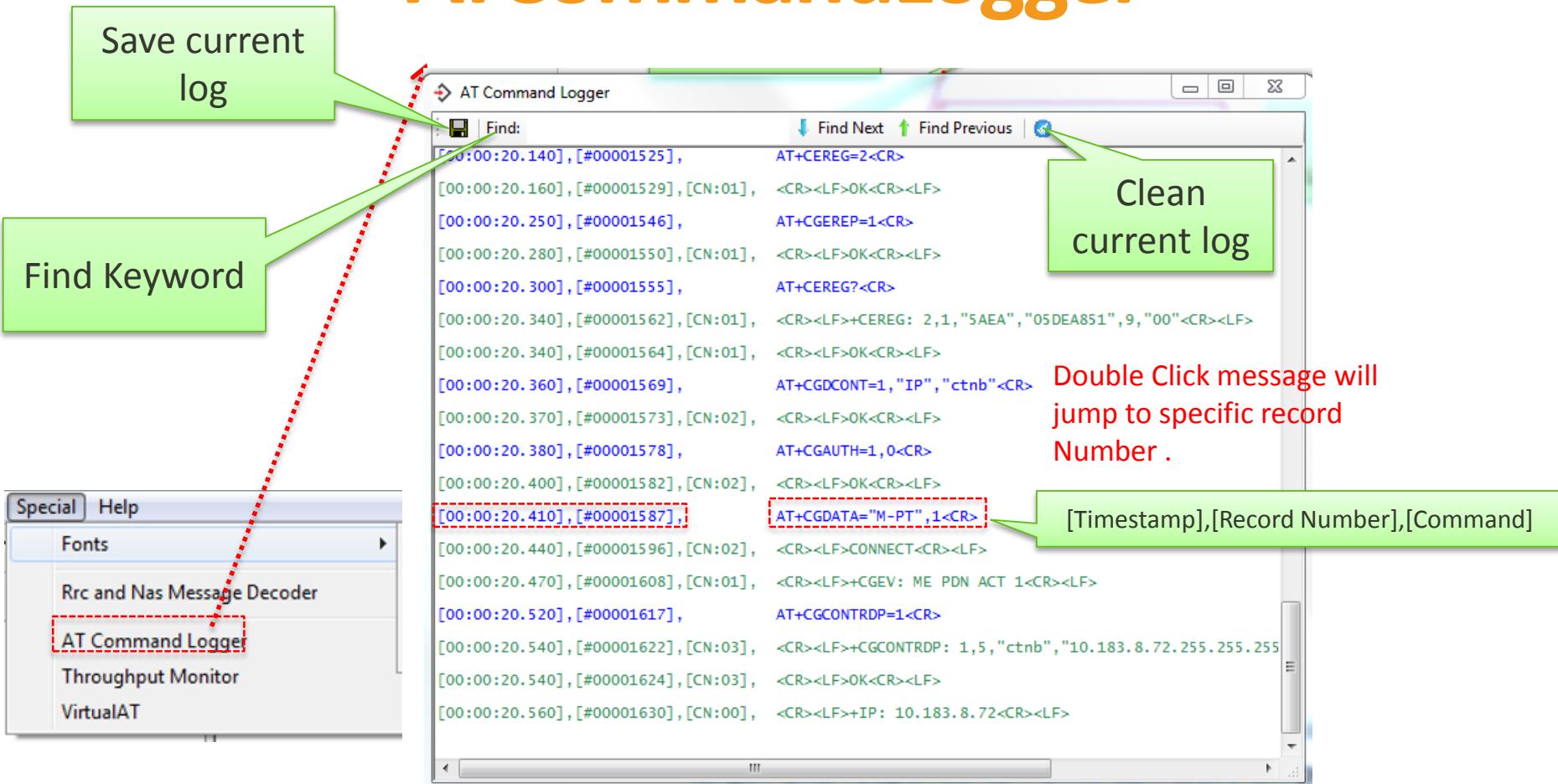


# Special menu

- Note:
  - Using AT CommandLogger/Throughput Monitor/Virtual AT/Customer Logger, please open it by **Special menu**, not click \*.exe by oneself on path :nbio\_t\_tools\_customer\_release\_xxx\ nbio\_t\ tools\ core\ genie\ tools.
- AT CommandLogger/Throughput Monitor/VirtualAT can not work without genie tool.
- Virtual AT need to install com0com driver, please refer to [VirtualAT](#),
- Trigger UE assert: send assert request to UE.

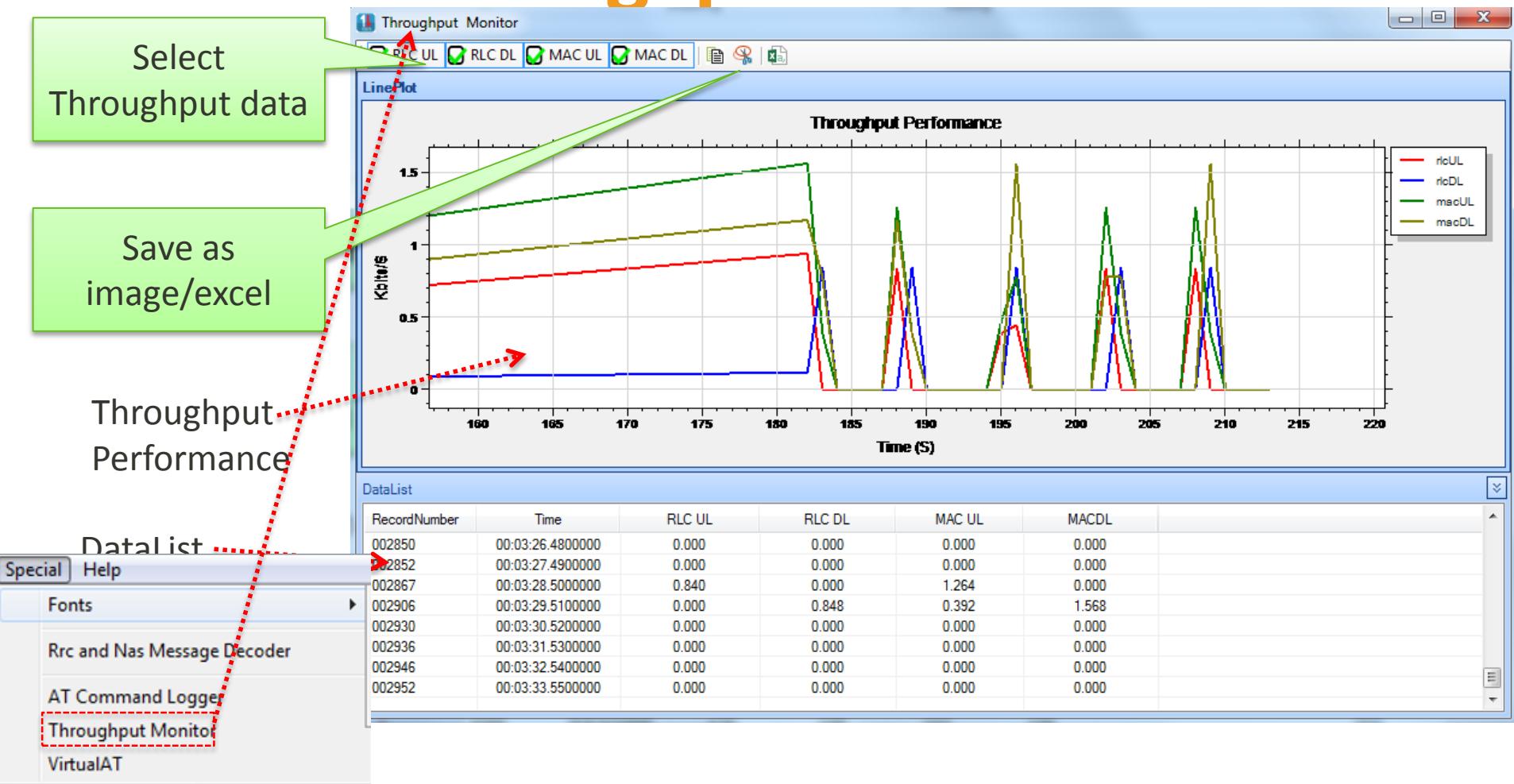


# ATCommandLogger



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

# Throughput Monitor



Throughput Monitor will show the detail which throughput data(RLC/MAC) . It also can work on online/offline Mode。

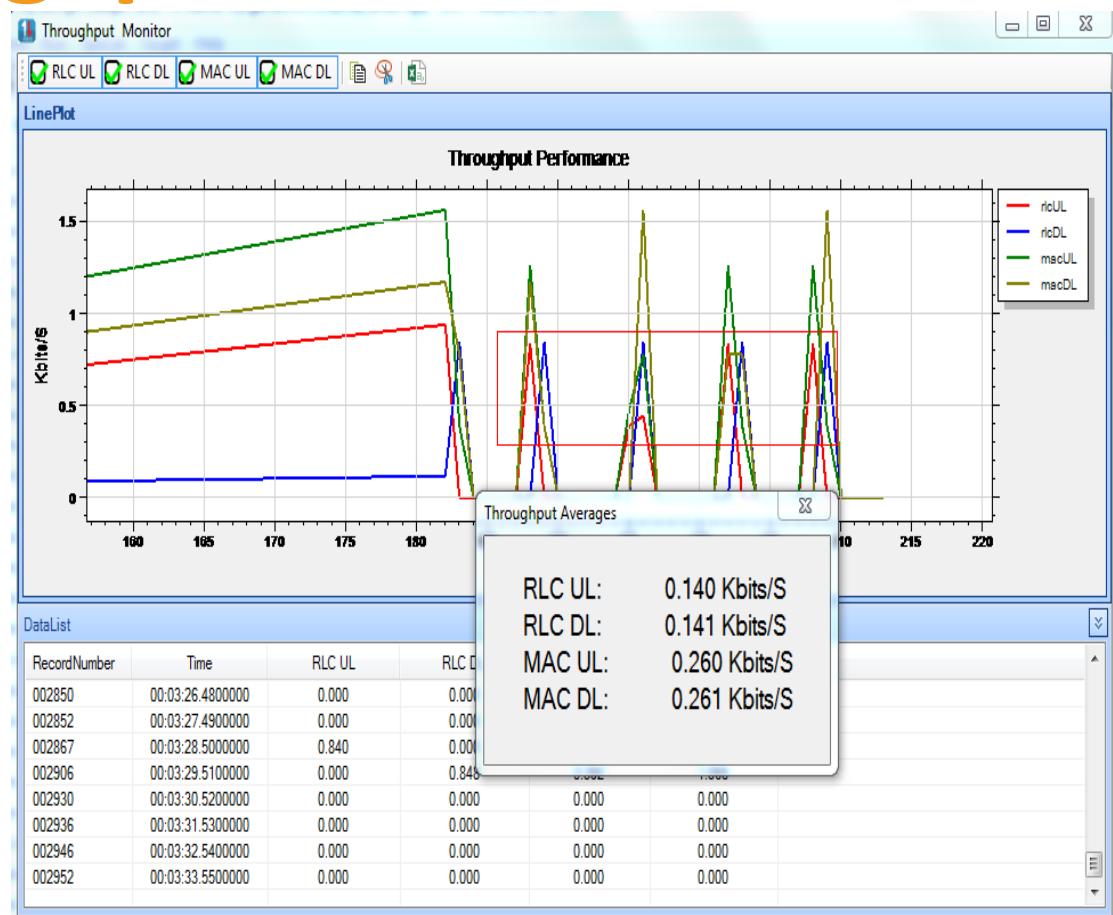
# Throughput Monitor

Throughput performance:

**left mouse button:** Drag and drop timeline

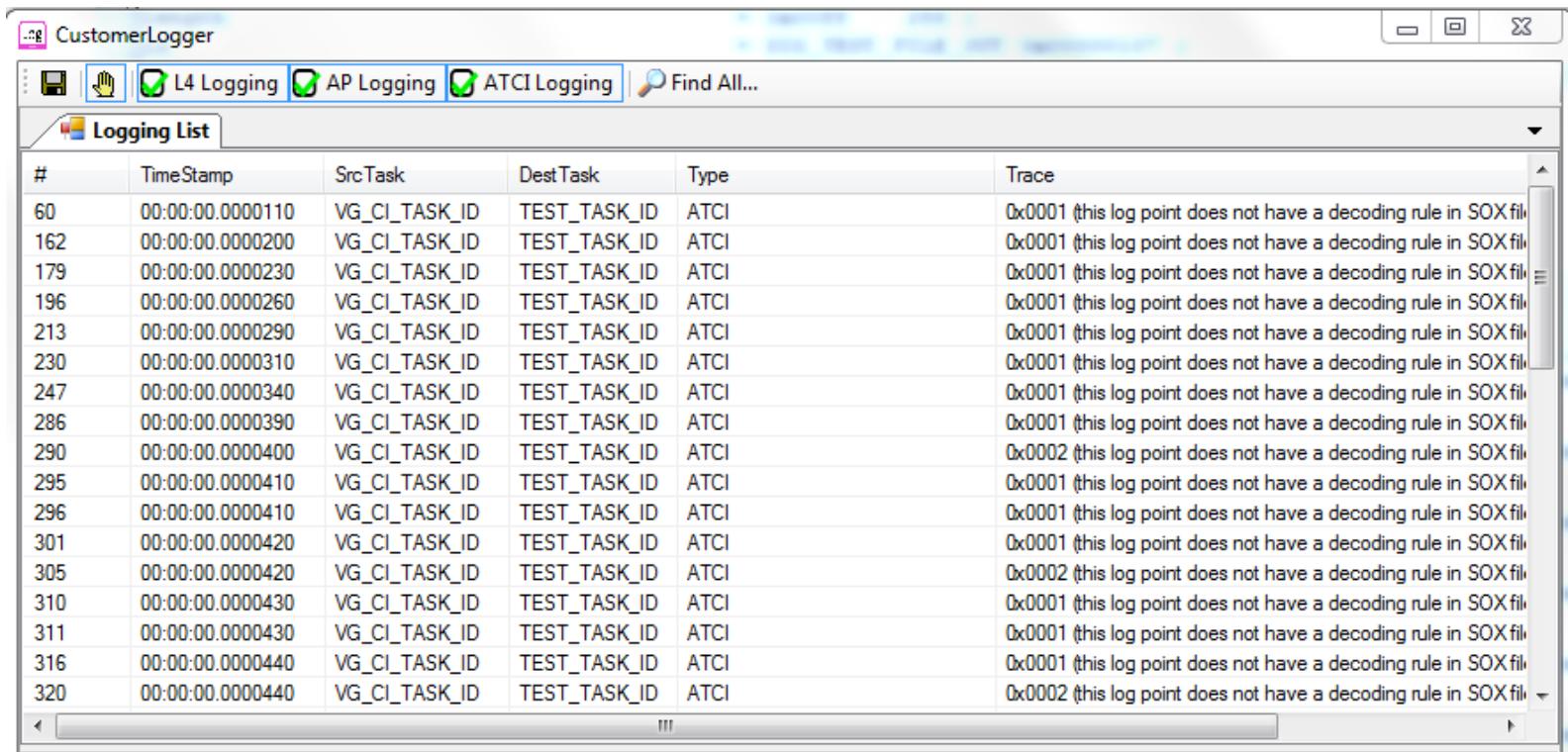
**Mouse wheel:** Zoom in and out .

**Right mouse button:** Box selection and Calculate the area average.



# CustomerLogger

CustomerLogger will show the details which L4 Logging/AP Logging/ATCI Logging. It can work on online/offline Mode.

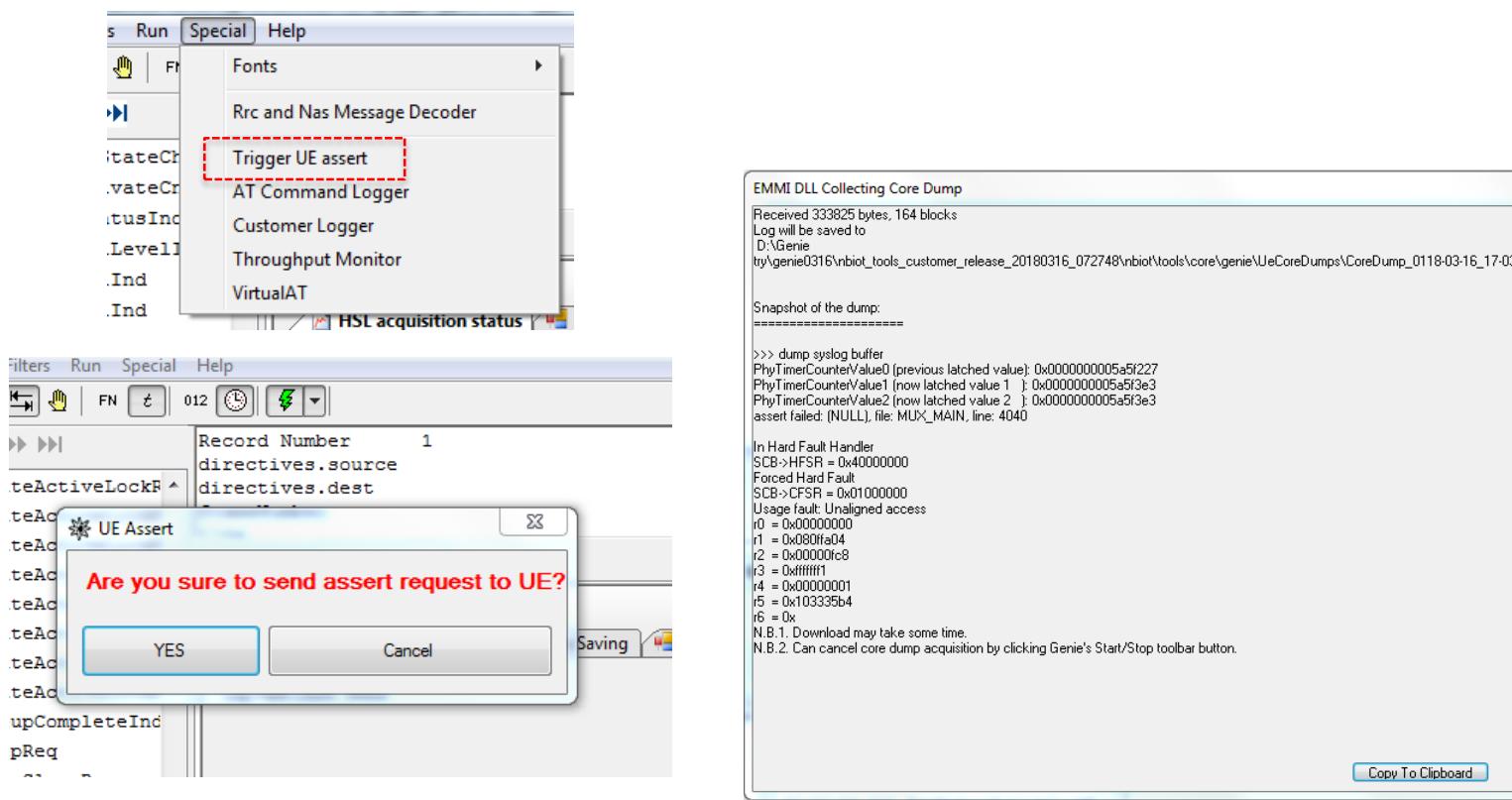


The screenshot shows the CustomerLogger application window. At the top, there is a toolbar with icons for file operations (New, Open, Save, Print, Copy, Paste, Find, Find All, Exit) and checkboxes for L4 Logging, AP Logging, ATCI Logging, and a Find All... button. Below the toolbar is a title bar labeled "CustomerLogger". The main area is titled "Logging List" and contains a table with the following columns: #, TimeStamp, SrcTask, DestTask, Type, and Trace. The table lists 320 entries, each corresponding to a log point from index 60 to 319. The "Trace" column contains entries like "0x0001 (this log point does not have a decoding rule in SOX file)" and "0x0002 (this log point does not have a decoding rule in SOX file)".

#	TimeStamp	SrcTask	DestTask	Type	Trace
60	00:00:00.0000110	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
162	00:00:00.0000200	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
179	00:00:00.0000230	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
196	00:00:00.0000260	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
213	00:00:00.0000290	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
230	00:00:00.0000310	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
247	00:00:00.0000340	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
286	00:00:00.0000390	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
290	00:00:00.0000400	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0002 (this log point does not have a decoding rule in SOX file)
295	00:00:00.0000410	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
296	00:00:00.0000410	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
301	00:00:00.0000420	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
305	00:00:00.0000420	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0002 (this log point does not have a decoding rule in SOX file)
310	00:00:00.0000430	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
311	00:00:00.0000430	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
316	00:00:00.0000440	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0001 (this log point does not have a decoding rule in SOX file)
320	00:00:00.0000440	VG_CI_TASK_ID	TEST_TASK_ID	ATCI	0x0002 (this log point does not have a decoding rule in SOX file)

# 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  
Please Refer to [Genie UE Core Dump Capture.](#)

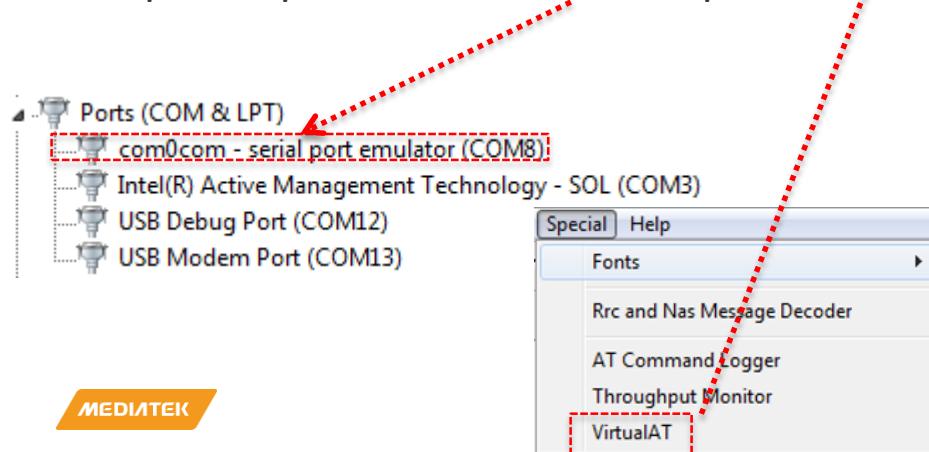


# VirtualAT

1. The utility VirtualAT provides support of AT commands over GKI.
2. Genie uses the open source com0com virtual drivers to create paired COM serial ports.

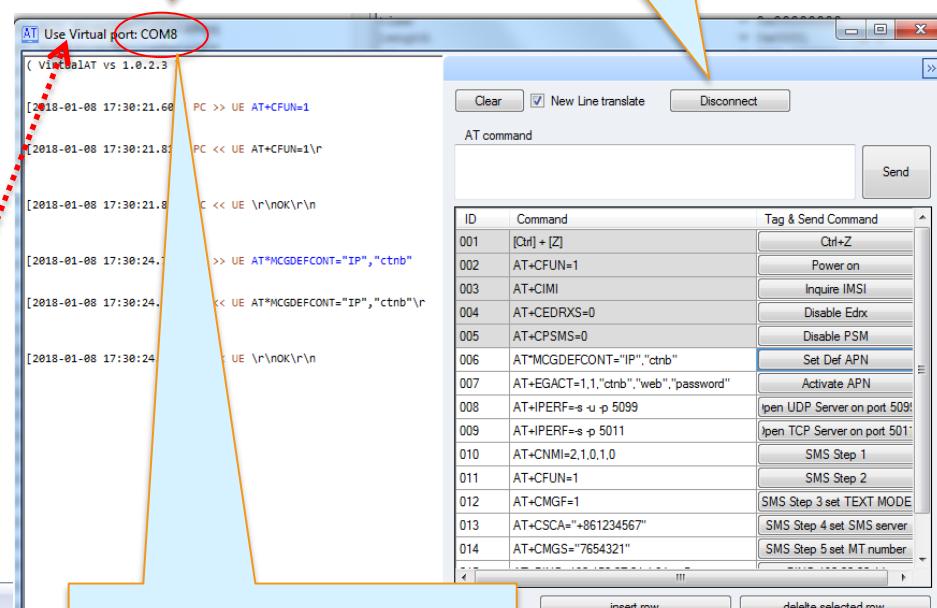
An installation batch file for IT is provided here:

- nbiot/tools/core/genie/tools/com0com/install.bat.(Run as administrator)
- If com0com is already installed:
  - Batch will proceed with only the creation of paired ports for VirtualAT's operation.



Once VirtualAT has started, it will give in its title bar the **serial port** for connection for external applications

This allows to connect locally and send AT command using the edit box below.



IMPORTANT: This Serial port is not visible to an external application until VirtualAT has connected to Genie successfully.

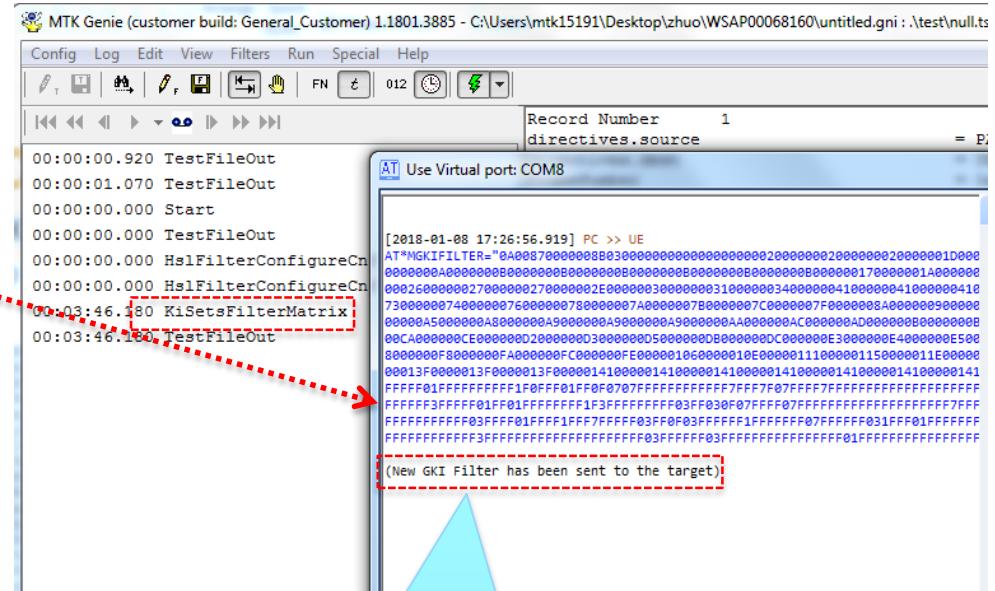
# Modify GKI Filter for target

If you want to edit GKI Filter for target. You can send AT Command with VirtualAT.

# Copy AT command to VirtualAT:

For example:

(This AT command will provide by MTK RD if necessary)



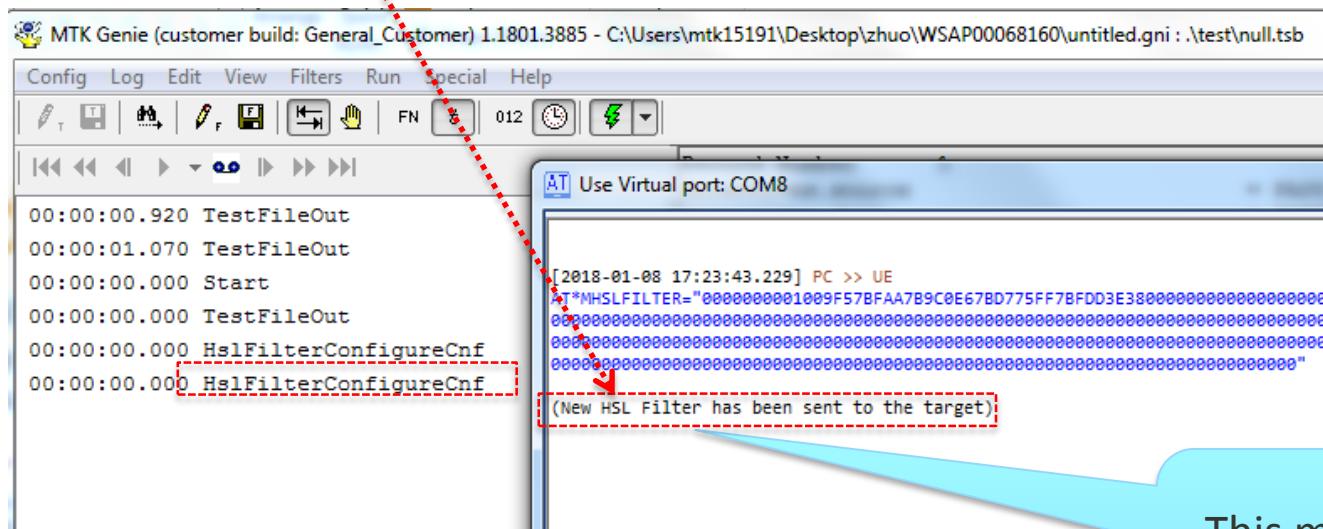
This means New GKI Filter  
has been sent to the target

# Modify HSL Filter for target

If you want to edit HSL Filter for target. If MTK RD need your help to edit HSL Filter the AT Command will provide by MTK(Such as the following format ), You can send AT Command with VirtualAT. Copy AT command to VirtualAT.

For example:

(This AT command will provide by MTK RD if necessary)



This means New HSL Filter has been sent to the target

# Signal view window

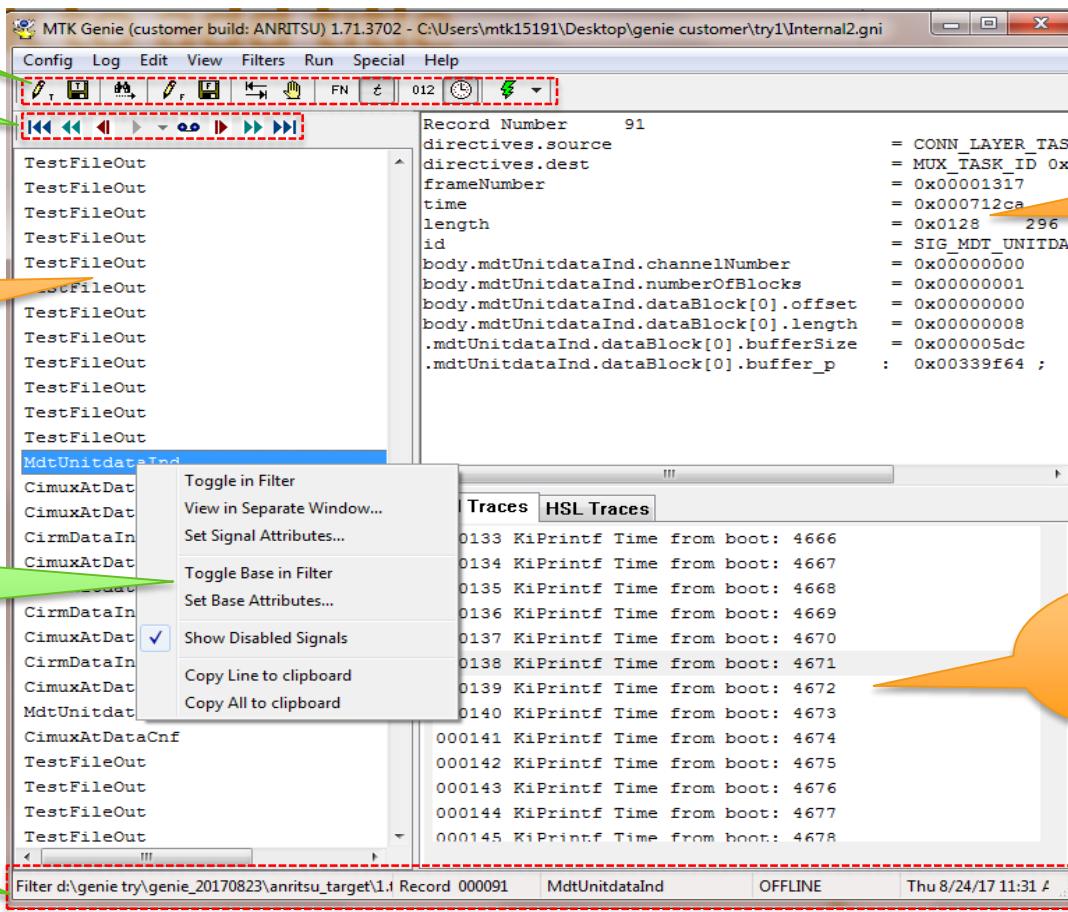
Buttons

Playback  
Toolbar

Signal  
Type

Right clicking on a  
signal brings up  
the Signal List  
popup menu

Status Bar



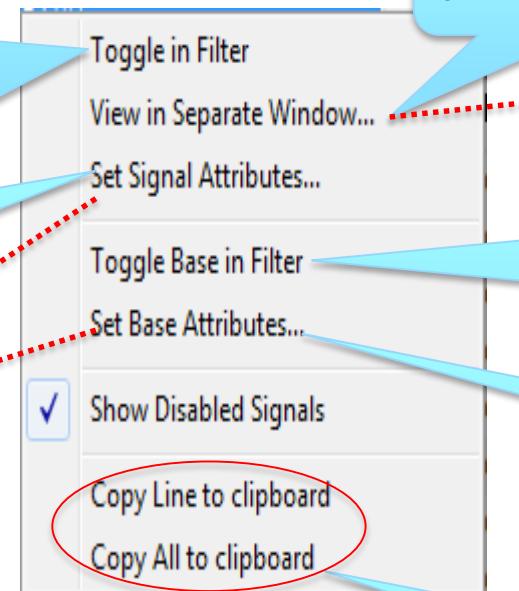
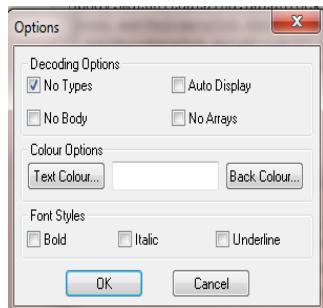
# Signal list popup menu

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.

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.

This option allow the selected signal to be displayed in its own window

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



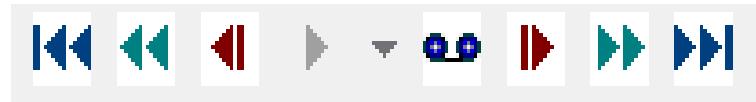
This option will toggle the state of all the signals in the base associated with the current selected signal using the state of the selected signal as the starting point. If the current signal is enabled then all signals in the base will be set to disabled.

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.

Copy the text on the selected Line/All to the clipboard.

Record Number 91, SIG_MDT_UNITDATA_IND (0x0005109D)	
directive.source	= CONN_LAYER_TASK_ID 0x040b ;
directive.dest	= MUX_TASK_ID 0x516 ;
frameNumber	= 0x00001317 4887 ;
time	= 0x000712ca 463562 ;
length	= 0x0128 296 ;
id	= SIG_MDT_UNITDATA_IND 0x0005
body.mdtUnitdataInd.channelNumber	= 0x00000000 ;
body.mdtUnitdataInd.numberOfBlocks	= 0x00000001 1 ;
body.mdtUnitdataInd.dataBlock[0].offset	= 0x00000000 0 ;
body.mdtUnitdataInd.dataBlock[0].length	= 0x00000008 8 ;
.mdtUnitdataInd.dataBlock[0].bufferSize	= 0x000005dc 1500 ;
.mdtUnitdataInd.dataBlock[0].buffer_p	: 0x00339ff6 ;

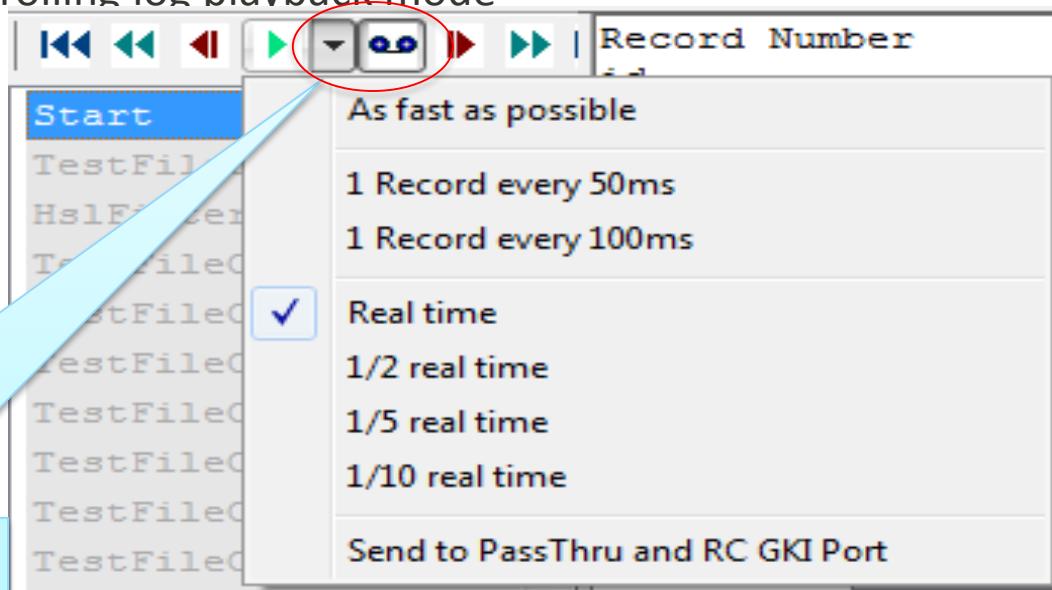
# Playback Toolbar



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

- Goto start/end of log**
- Previous/next block**
- Previous/next record**
- Playback mode**
- Play/Stop buttons**

This button starts and stops log playback as well as allowing selection of playback speed from the drop-down menu



# Buttons

This option **displays or hides timing information** in the **Signal Type** list box

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

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

Find signal contents

Edit/Save Configuration

Edit/Save Filters

Start/Stop Test



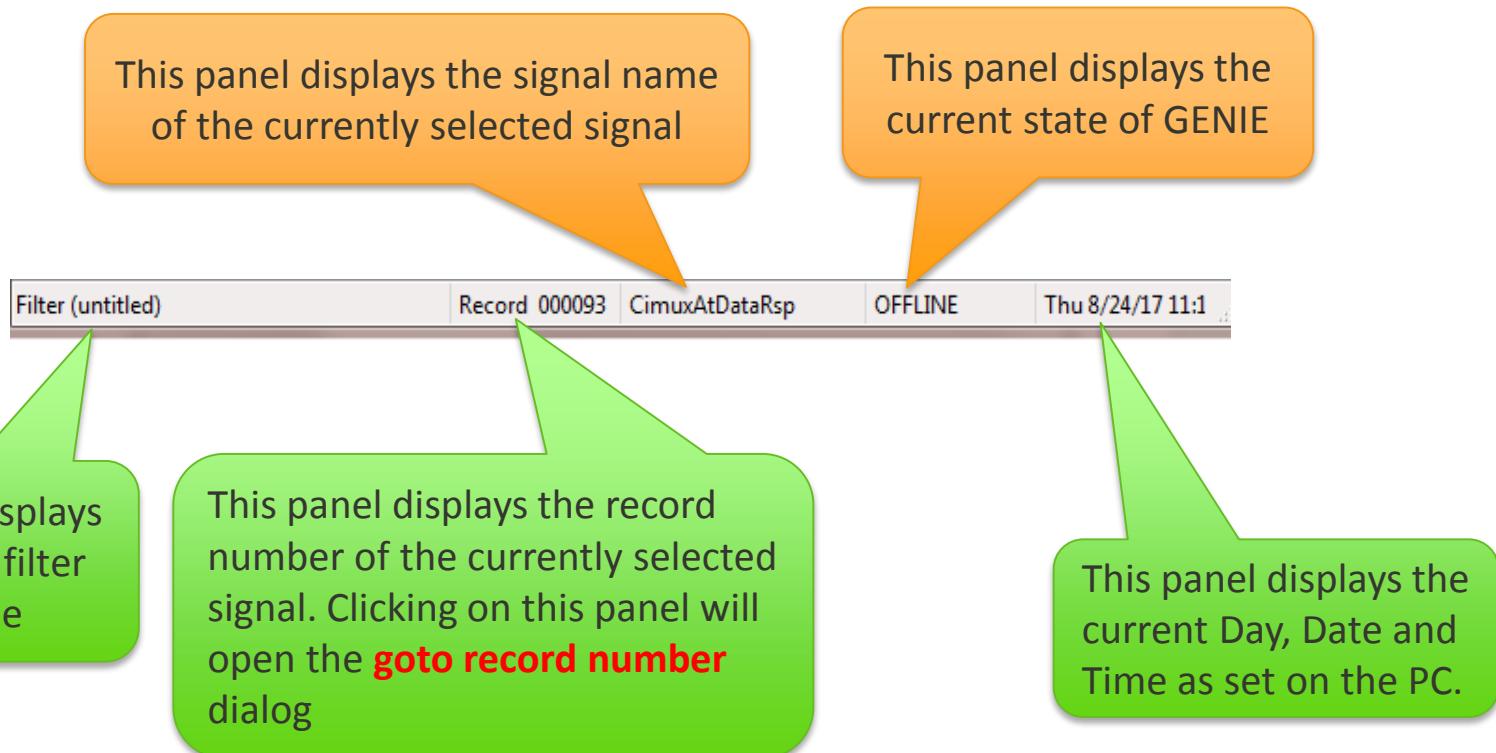
Selecting this stops the **Signal Type** list box and **Trace Output** window from scrolling while logging signals

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

Selecting this causes **Timing Information** to be **displayed as Hours, Minutes and Seconds**.

# 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.



# RRC Decoder Introduction

- RRCDEC.exe is an 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.
- For NAS decoding, there is a dependency on WireShark.

# Offline mode

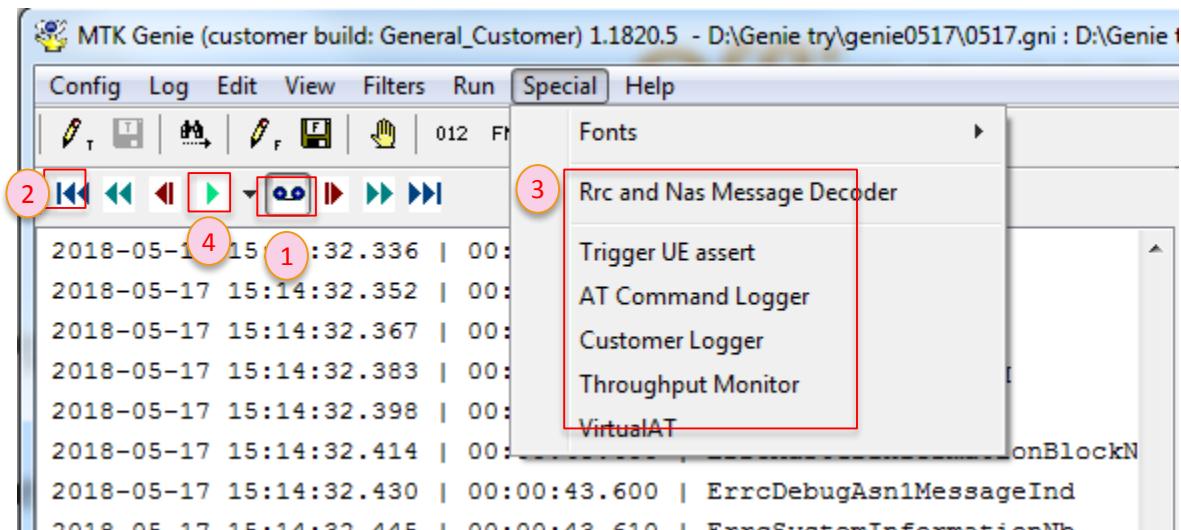
- Open existing \*.GLP log.

① Select the playback mode

② Go to the start of log

③ Open the utility

④ Click the play log button 



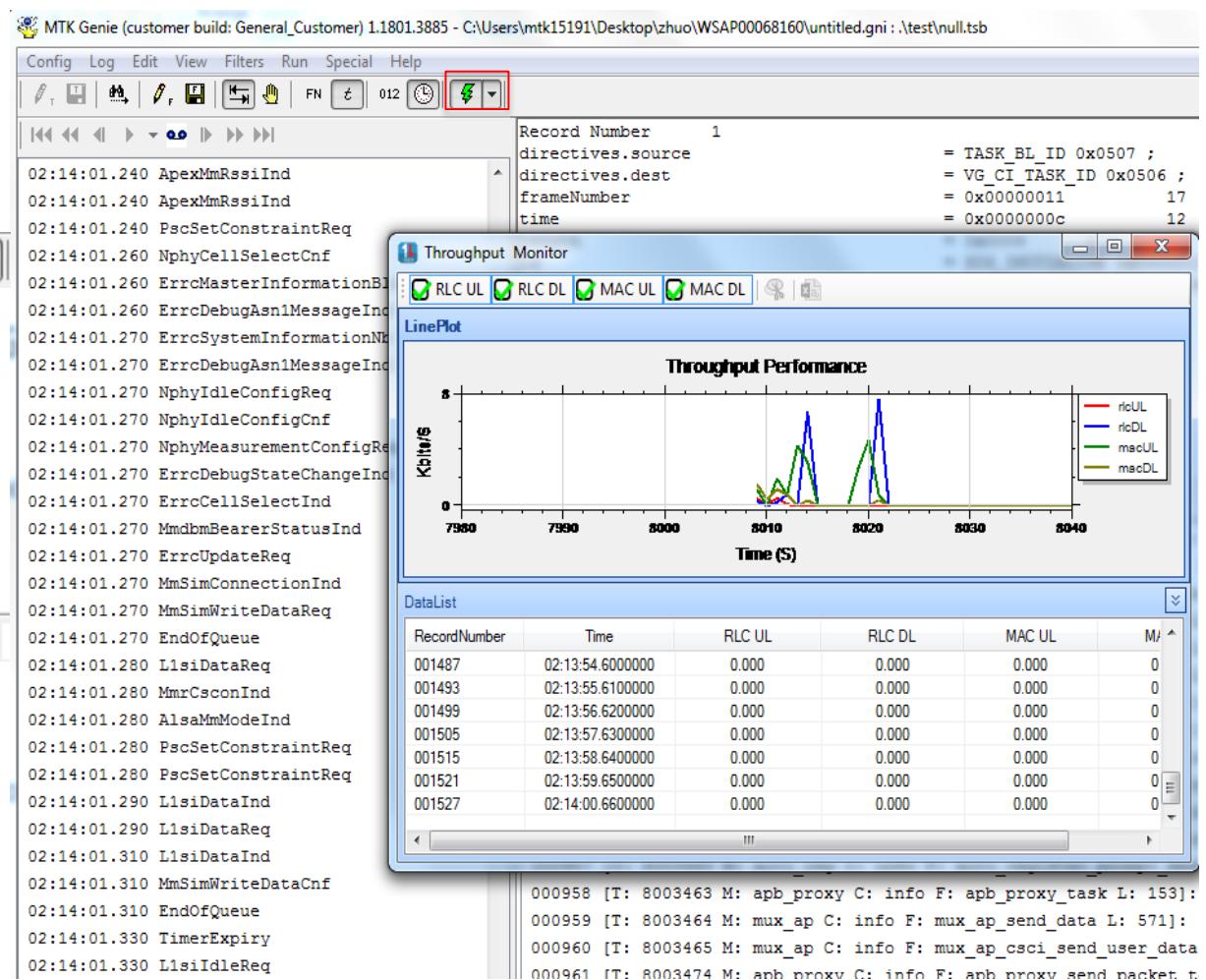
# Online mode

- Open the utility

① Click Start Test button



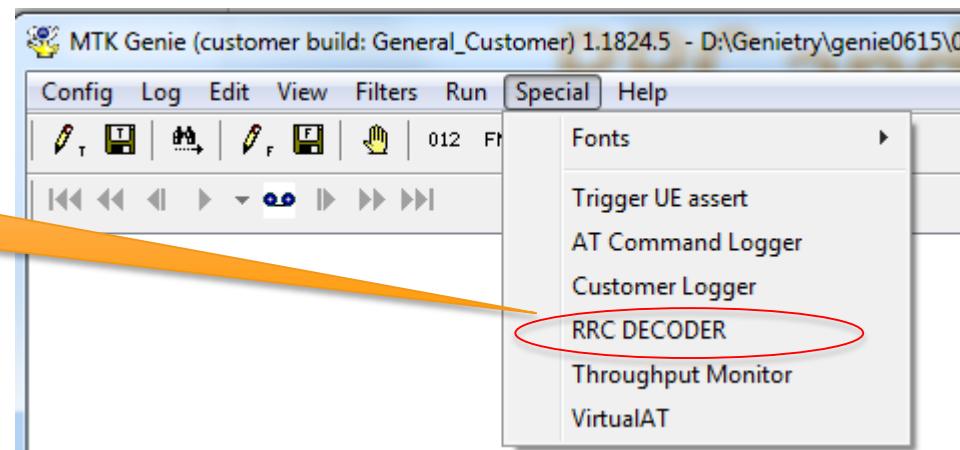
The information is captured  
real-time from a target



# RRC and ASN message decoder

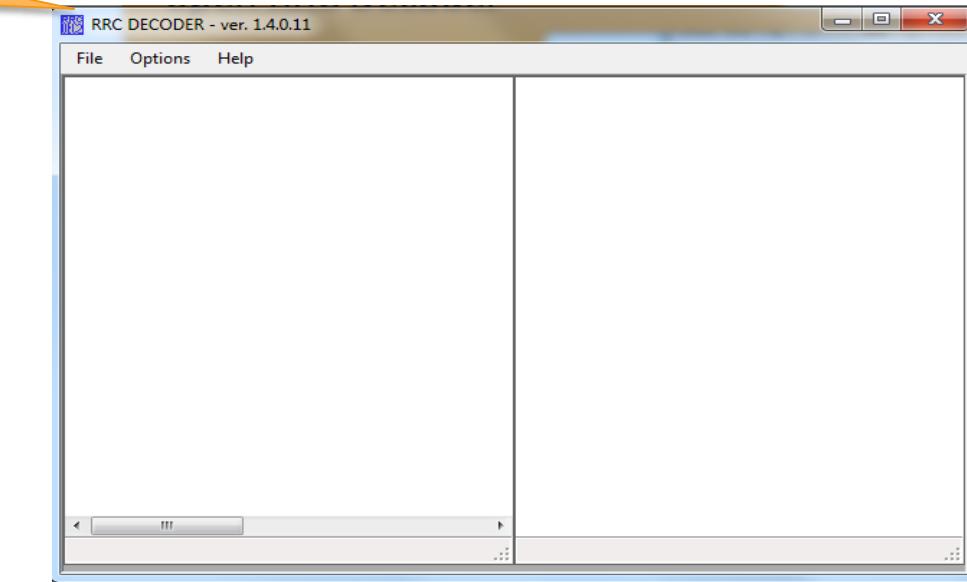
1

Select this option to open RRC Decoder



2

Popup the RRC DECODER window

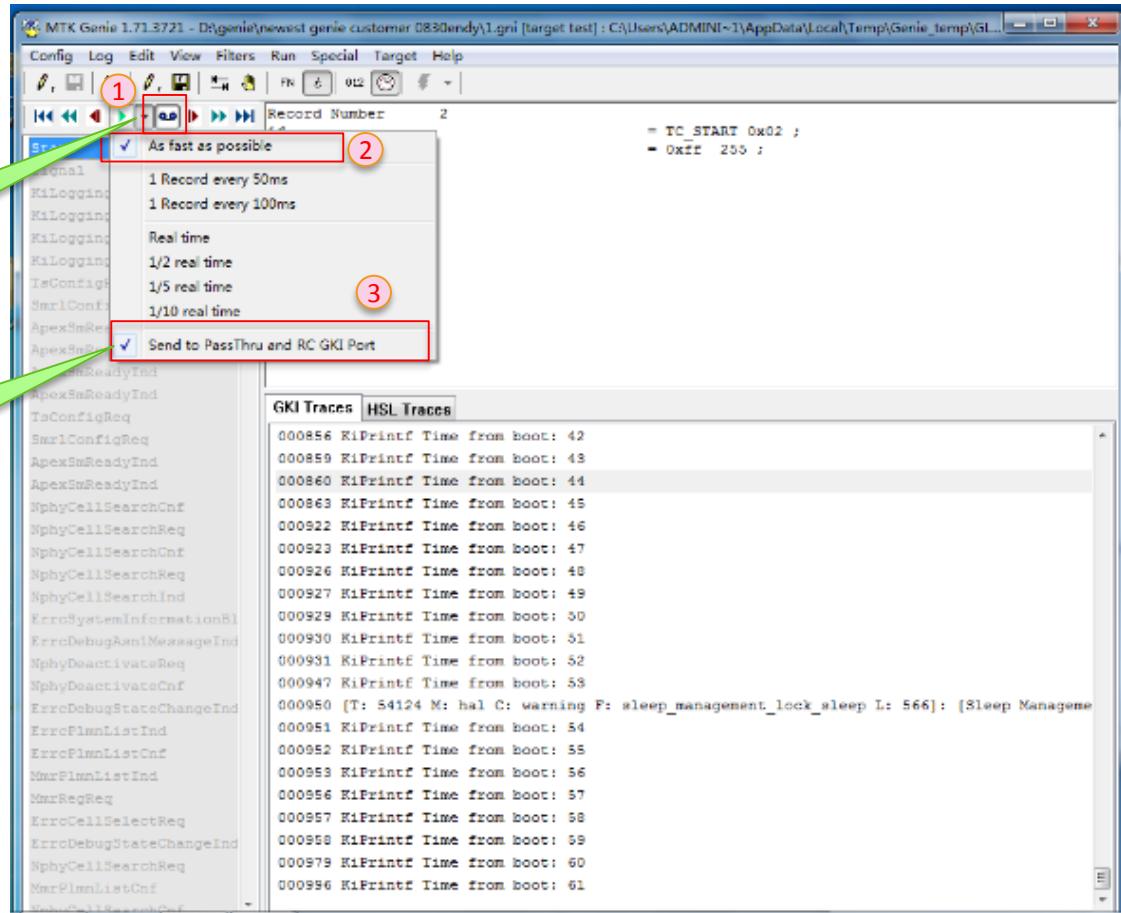


# RRC decoder offline mode (replay log)1/3

- Open existing \*.GLP log.

Select the playback mode

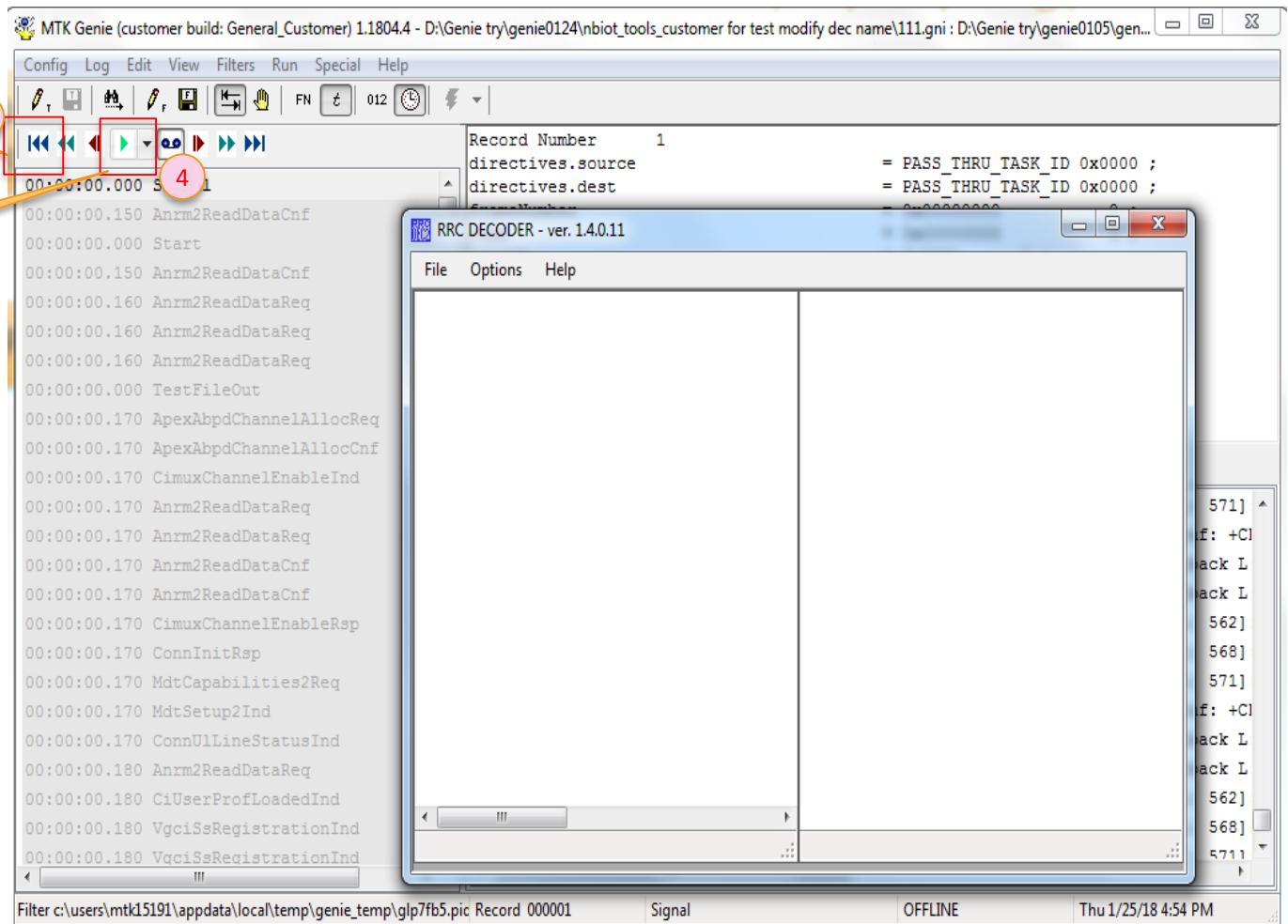
Select the **playback speed** and “Send to PassThru and RC GKI Port” option.



# RRC decoder offline mode (replay log)2/3

Goto the start  
of log

Play log



# RRC decoder offline mode (replay log)3/3

Example of message and its decoded form.

The screenshot shows the RRC DECODER software interface. The left pane displays a list of messages with their sequence numbers, times, bearers, source/destination, and types. Message 1459 is highlighted with a red box and circled with a red number 6. The right pane shows the detailed decoded content of message 1459, including the NAS message type, DLT, payload, and various parameters like security header type, protocol discriminator, and timer values. A green callout on the left points to the highlighted message.

Current Select : (Sequence No.) 21 / 28 | Genie Record Number: 1459 / 2201

Contents of NAS message: 07420149064064F0115AEA002B5201C1

DLT: 147, Payload: nas-eps\_plain (Non-Access-Stratum (NAS) Non-Access-Stratum (NAS) PDU

0000 .... = Security header type: Plain NAS message,  
.... 0111 = Protocol discriminator: EPS mobility mana  
NAS EPS Mobility Management Message Type: Attach acce  
0000 .... = Spare half octet: 0  
.... 0... = Spare bit(s): 0x00  
.... .001 = Attach result: EPS only (1)  
GPRS Timer - T3412 value  
GPRS Timer: 54 min  
010. .... = Unit: value is incremented in mul  
...0 1001 = Timer value: 9

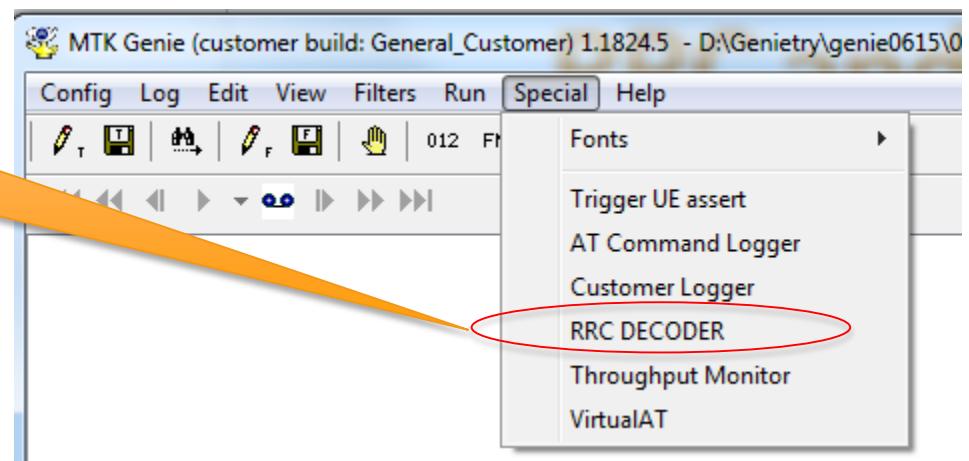
Tracking area identity list - TAI list  
Length: 6  
0... .... = Spare bit(s): 0x00  
.10. .... = Type of list: list of TAIs belonging  
...0 0000 = Number of elements: 0 [+1 = 1 element]  
Mobile Country Code (MCC): China (460)  
Mobile Network Code (MNC): Unknown (11)  
Tracking area code(TAC): 23274

ESM message container  
Length: 43  
ESM message container contents: 5201c101091804637  
0101 .... = EPS bearer identity: EPS bearer i  
... 0010 = Protocol discriminator: EPS sessi  
Procedure transaction identity: 1  
NAS EPS session management messages: Activate  
EPS quality of service  
Length: 1  
Quality of Service Class Identifier (QCI)  
Access Point Name

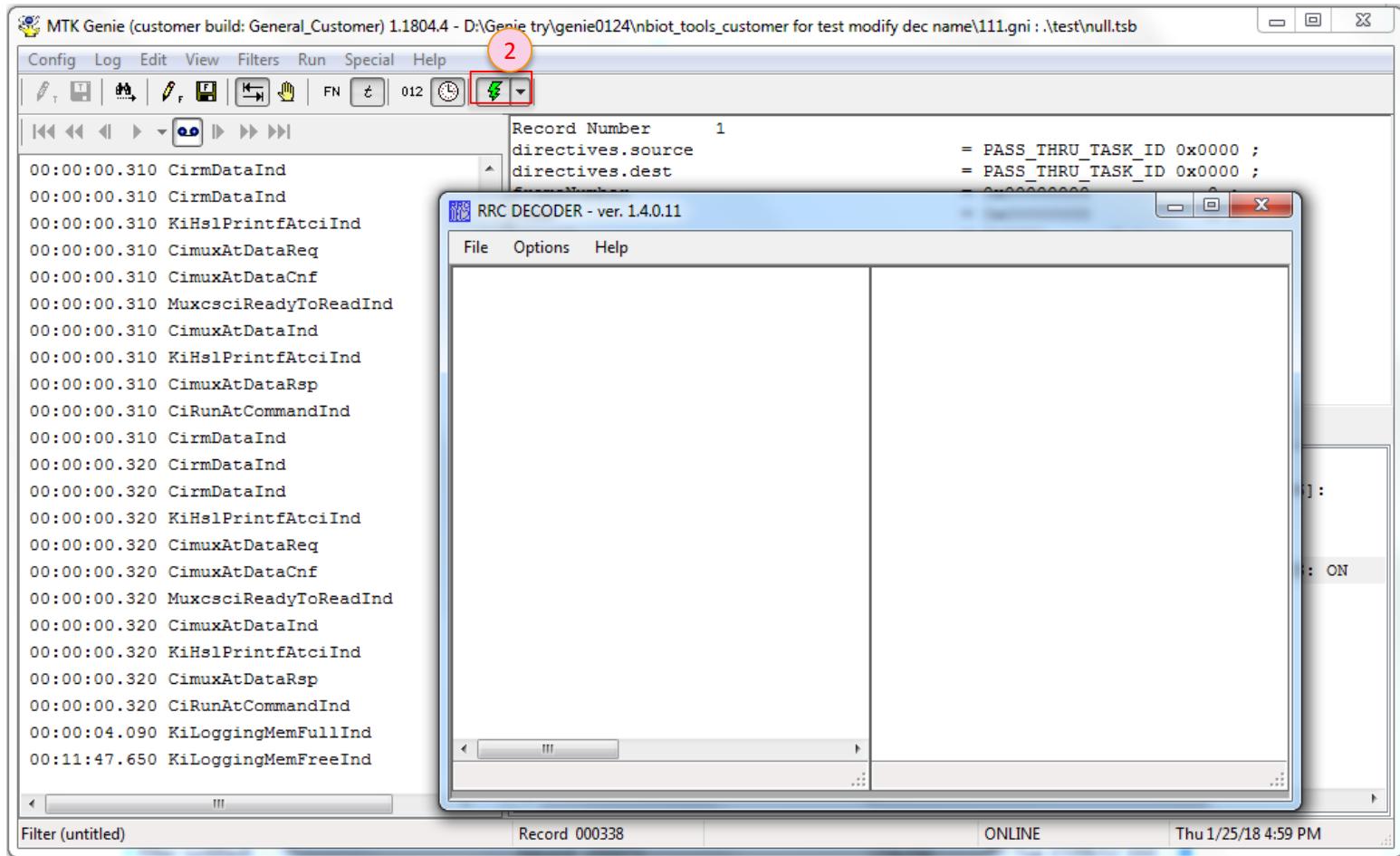
# RRC Decoder online mode 1/2

1

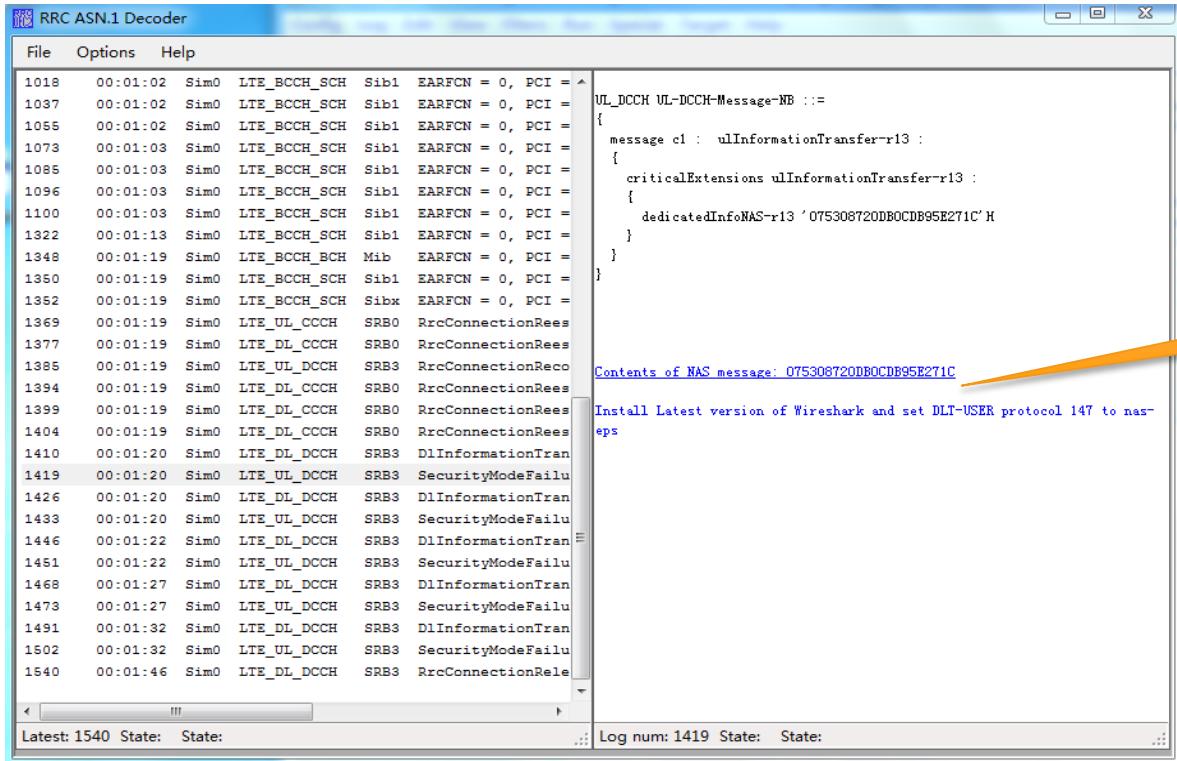
Select this option to open RRC ASN.1 Decoder



# RRC decoder online mode 2/2



# WireShark for NAS messages



If some items cannot be decoded.

Installation issue:  
please refer to next slide.

- Install latest version of Wireshark from:  
<https://www.wireshark.org/download.html>.

# Example of ASN.1 with NAS Message

## Result

The screenshot shows the RRC ASN.1 Decoder application window. The left pane displays a log of radio frame (RF) events, and the right pane shows the corresponding ASN.1 code and its contents.

**Log (Left Pane):**

RF	Time	Sim	Cell ID	Event	Details
1085	00:01:03	Sim0	LTE_BCCH_SCH	Sib1	EARFCN = 0, PCI =
1096	00:01:03	Sim0	LTE_BCCH_SCH	Sib1	EARFCN = 0, PCI =
1100	00:01:03	Sim0	LTE_BCCH_SCH	Sib1	EARFCN = 0, PCI =
1322	00:01:13	Sim0	LTE_BCCH_SCH	Sib1	EARFCN = 0, PCI =
1348	00:01:19	Sim0	LTE_BCCH_BCH	Mib	EARFCN = 0, PCI =
1350	00:01:19	Sim0	LTE_BCCH_SCH	Sib1	EARFCN = 0, PCI =
1352	00:01:19	Sim0	LTE_BCCH_SCH	Sibx	EARFCN = 0, PCI =
1369	00:01:19	Sim0	LTE_UL_CCCH	SRB0	Rrc_connection_req
1377	00:01:19	Sim0	LTE_DL_CCCH	SRB0	Rrc_connection_set
1385	00:01:19	Sim0	LTE_UL_DCCH	SRB1bis	Rrc_connection_
1394	00:01:19	Sim0	LTE_DL_CCCH	SRB0	Rrc_connection_set
1399	00:01:19	Sim0	LTE_DL_CCCH	SRB0	Rrc_connection_set
1404	00:01:19	Sim0	LTE_DL_CCCH	SRB0	Rrc_connection_set
1410	00:01:20	Sim0	LTE_DL_DCCH	SRB1bis	Dl_information_
1419	00:01:20	Sim0	LTE_UL_DCCH	SRB1bis	Ul_information_
1426	00:01:20	Sim0	LTE_DL_DCCH	SRB1bis	Dl_information_
1433	00:01:20	Sim0	LTE_UL_DCCH	SRB1bis	Ul_information_
1446	00:01:22	Sim0	LTE_DL_DCCH	SRB1bis	Dl_information_
1451	00:01:22	Sim0	LTE_UL_DCCH	SRB1bis	Ul_information_
1468	00:01:27	Sim0	LTE_DL_DCCH	SRB1bis	Dl_information_
1473	00:01:27	Sim0	LTE_UL_DCCH	SRB1bis	Ul_information_
1491	00:01:32	Sim0	LTE_DL_DCCH	SRB1bis	Dl_information_
1502	00:01:32	Sim0	LTE_UL_DCCH	SRB1bis	Ul_information_
1540	00:01:46	Sim0	LTE_DL_DCCH	SRB1bis	Rrc_connection_

**ASN.1 Code and Contents (Right Pane):**

```
UL_DCCH UL-DCCH-Message-NB ::=  
{  
    message cl : ulInformationTransfer-r13 :  
    {  
        criticalExtensions ulInformationTransfer-r13 :  
        {  
            dedicatedInfoNAS-r13 '27EF2B6BC303BB5428F528972E' H  
        }  
    }  
}  
  
Contents of NAS message: 27EF2B6BC303BB5428F528972E  
  
DLT: 149, Payload: nas-eps (Non-Access-Stratum (NAS)PDU)  
Non-Access-Stratum (NAS)PDU  
    0010 .... = Security header type: Integrity protected and ciphered (2)  
    .... 0111 = Protocol discriminator: EPS mobility management messages  
(0x7)  
        Message authentication code: 0xef2b6bc3  
        Sequence number: 3  
        Ciphered message: bb5428f528972e
```

Latest: 1540 State: State:  
Log num: 1502 State: State:

# Extract Pcap Data(By PcapDataSaver)

2

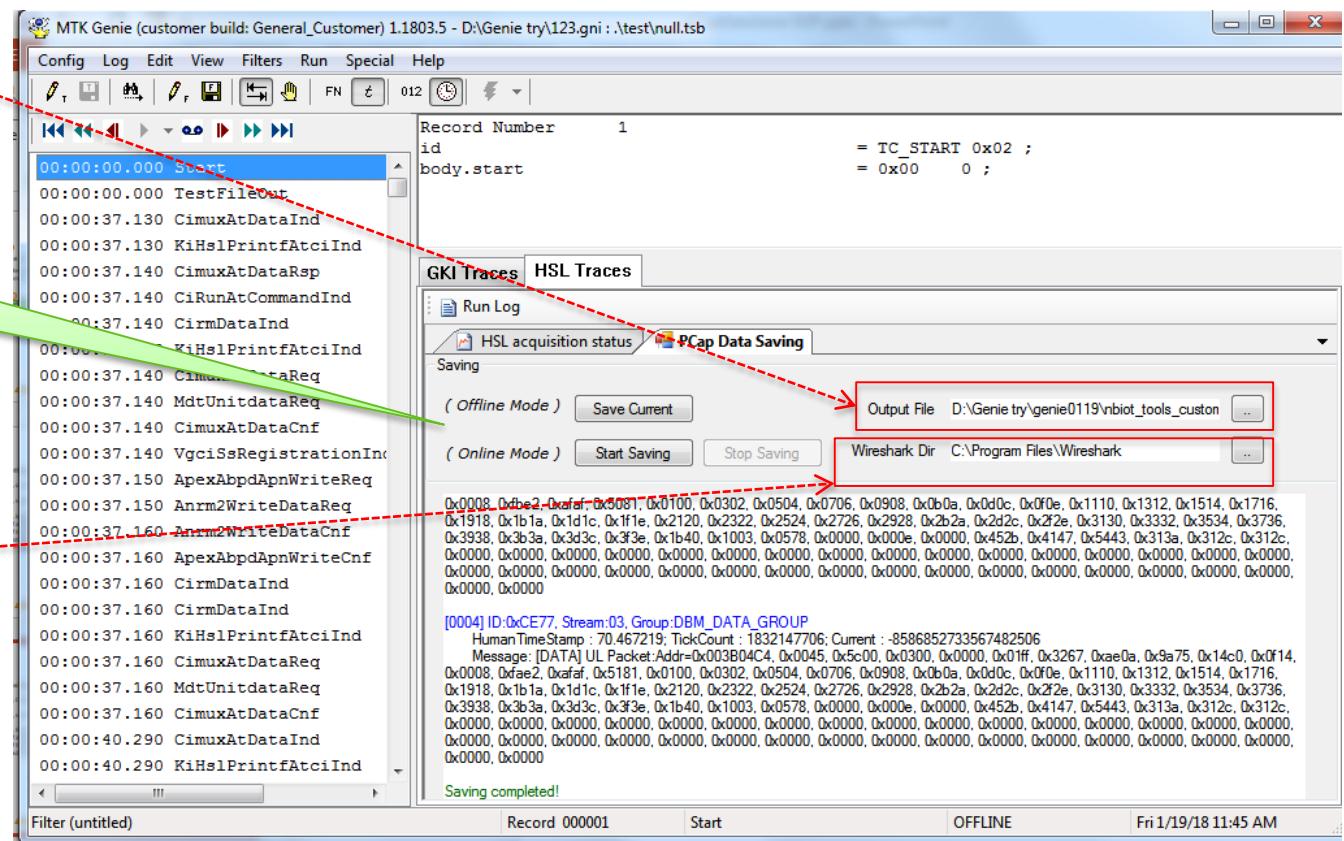
## Step1:

## Select output file path.

2

Select offline/online mode to Save data.

Select Wireshark  
installation path.



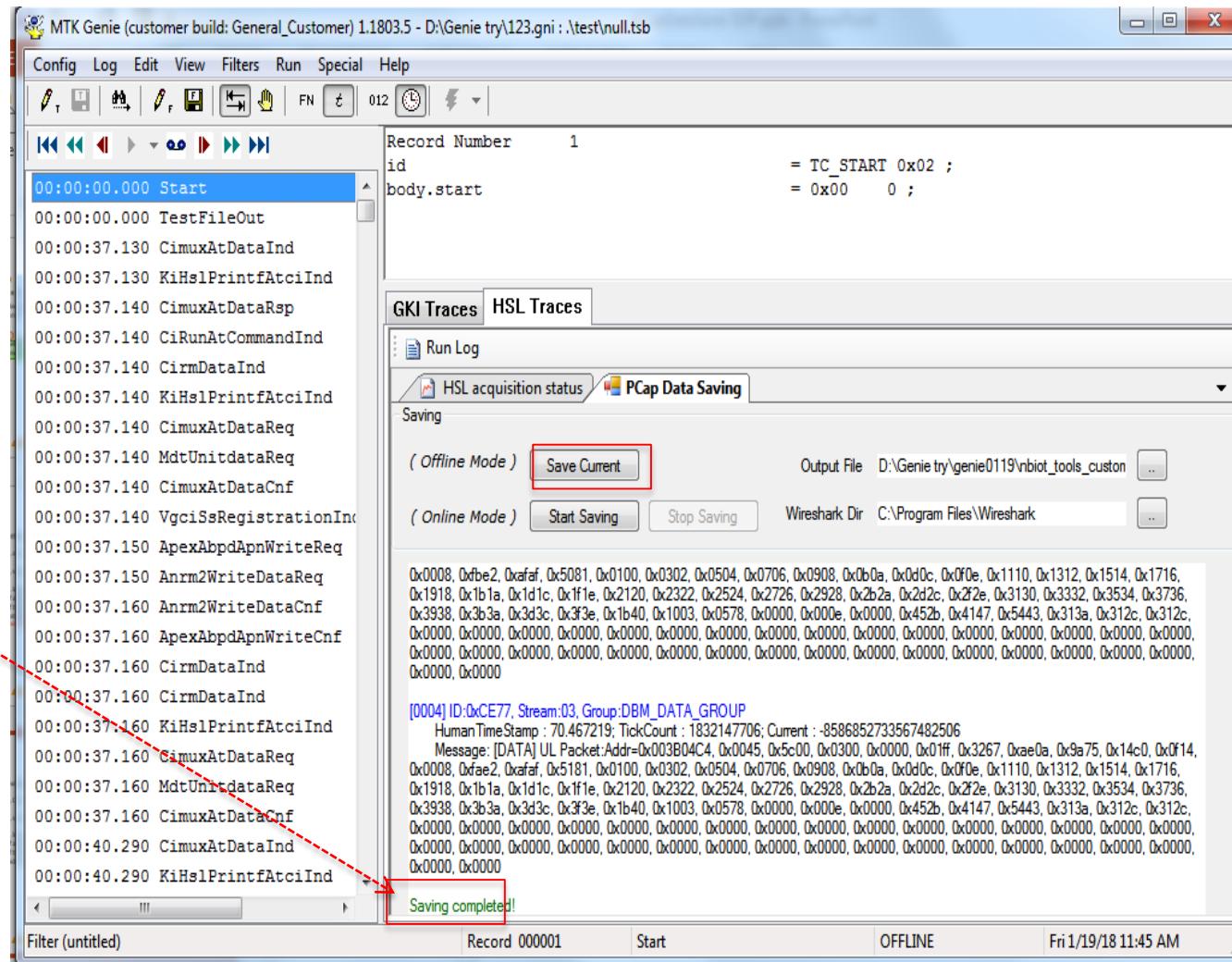
# PcapDataSaver Offline mode

Offline mode:

1, open \*.glp file

2, select “Save Current”

3, Start saving pCap data  
of all matching messages  
of the current \*.glp file  
until the prompt of **Saving  
completed!** appears.



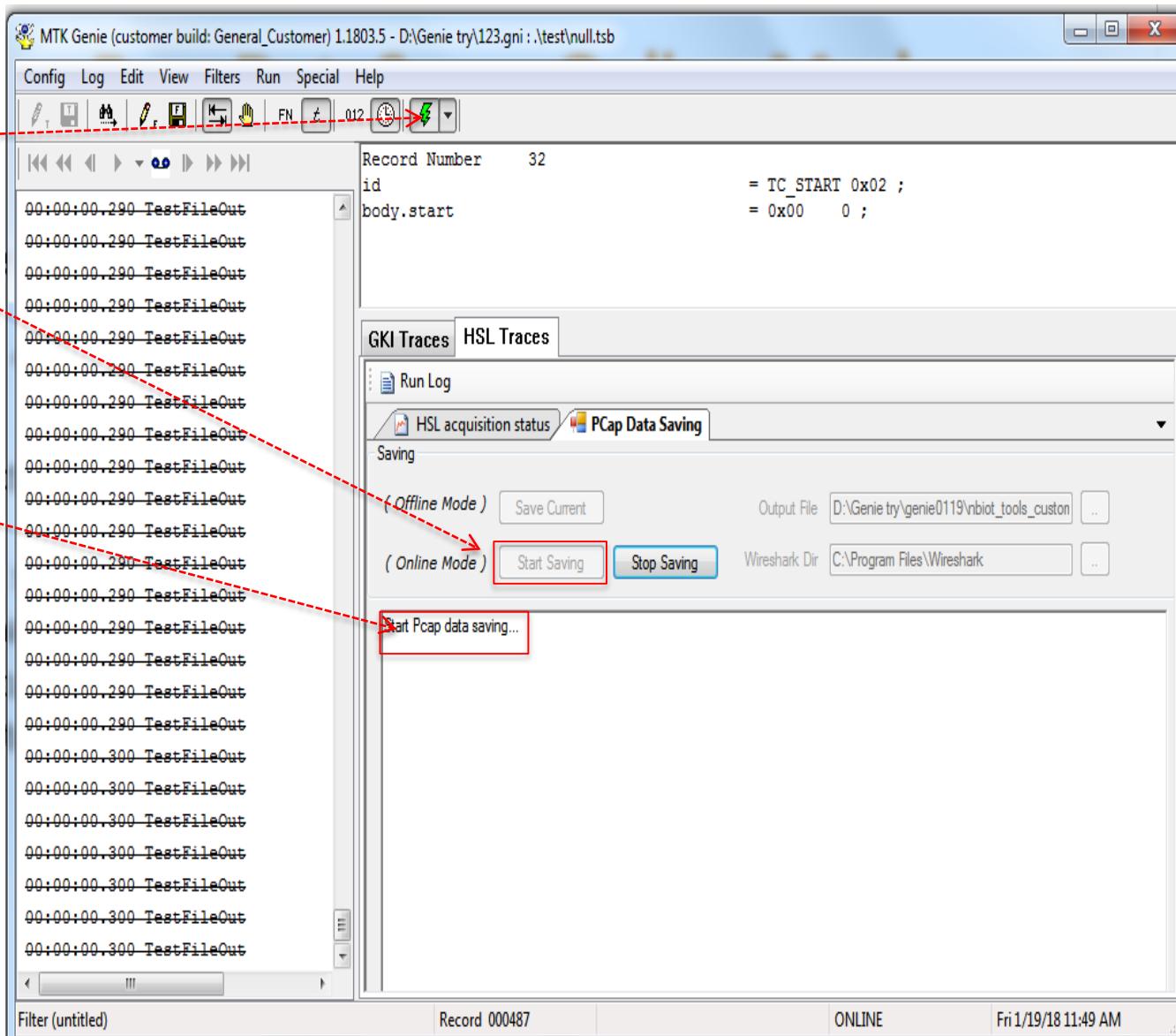
# PcapDataSaver Online Mode

## Online mode:

1, Click "start test"

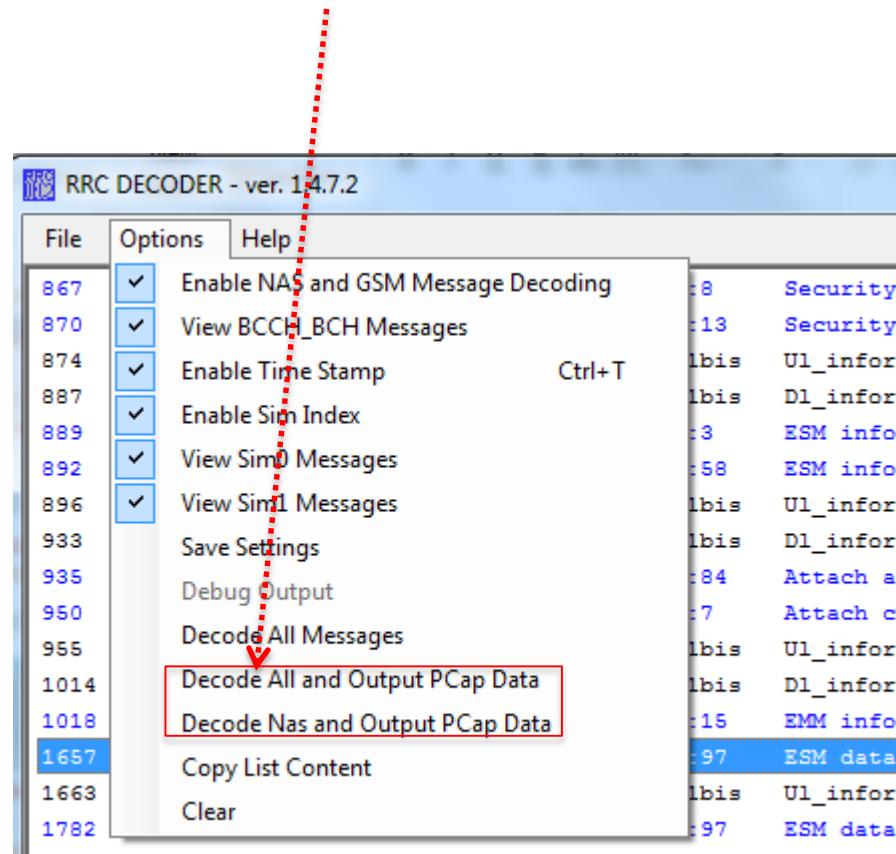
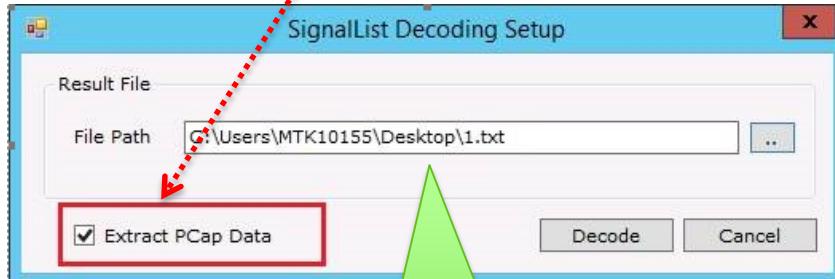
2, select "Start Saving"

3, Start saving pCap data  
of all matching messages  
of the current log file until  
click "Stop Saving"



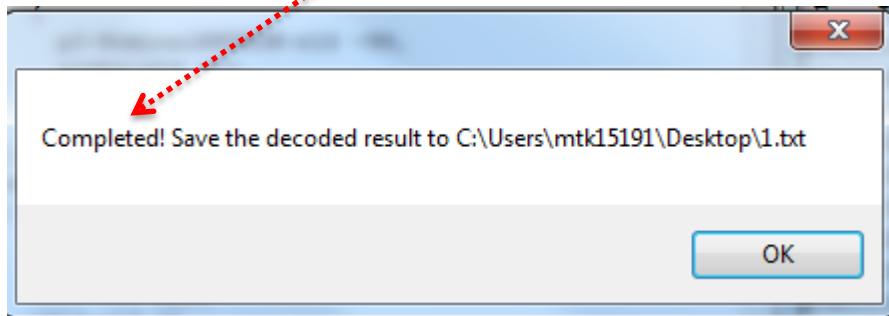
# Extract Pcap Data( By RRC DECODER)

- 1, RRC Decoder offline mode to show the ASN/NAS message.
- 2, RRC DECODER Options menu select “Decode All and Output Pcap Data” or “Decode Nas and Output Pcap Data”
- 3, click ” Extract Pcap Data”



# Extract Pcap Data( By RRC DECODER)

4, After Decode completed, you can open the corresponding \*.pcap file.

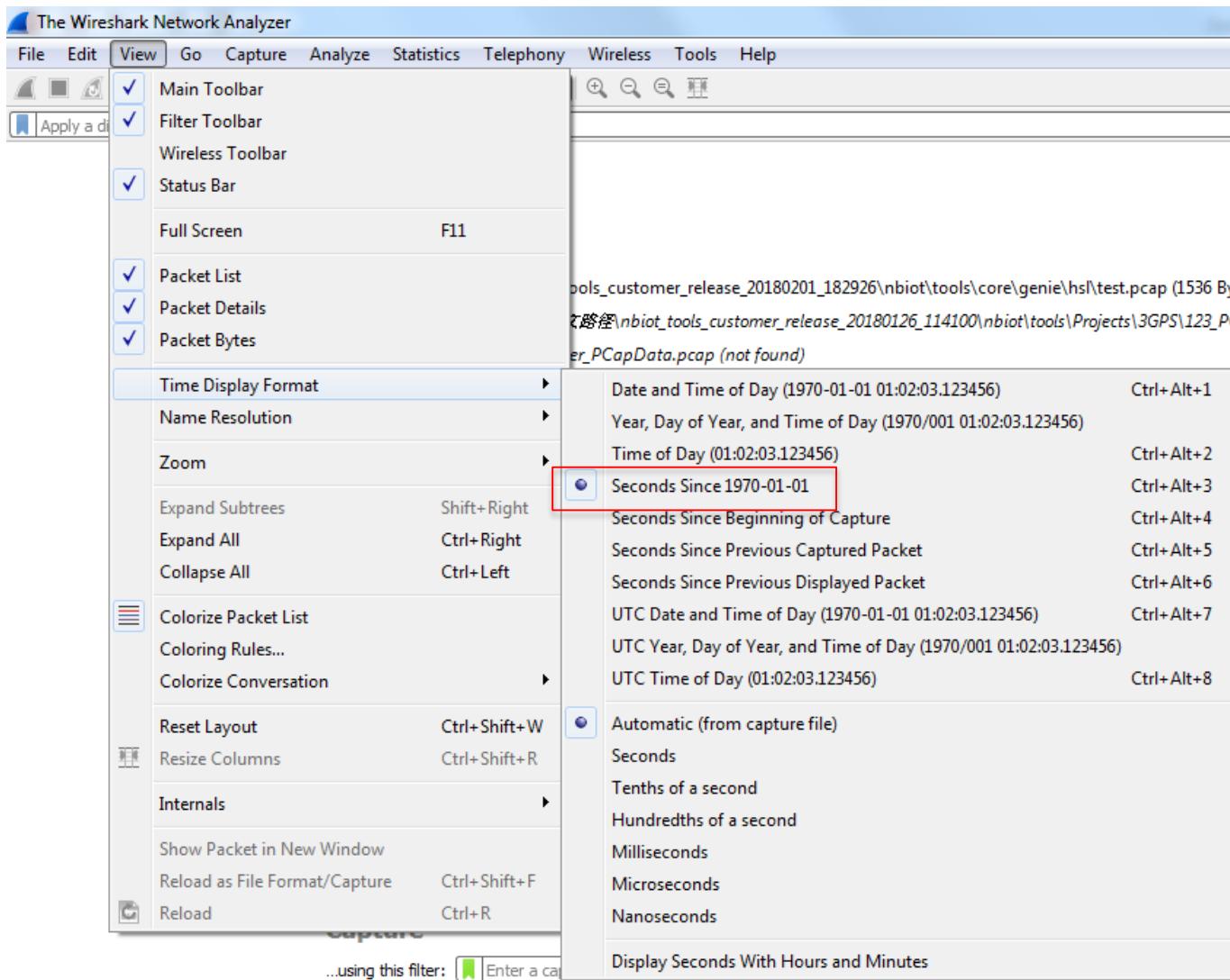


All ASN/NAS message



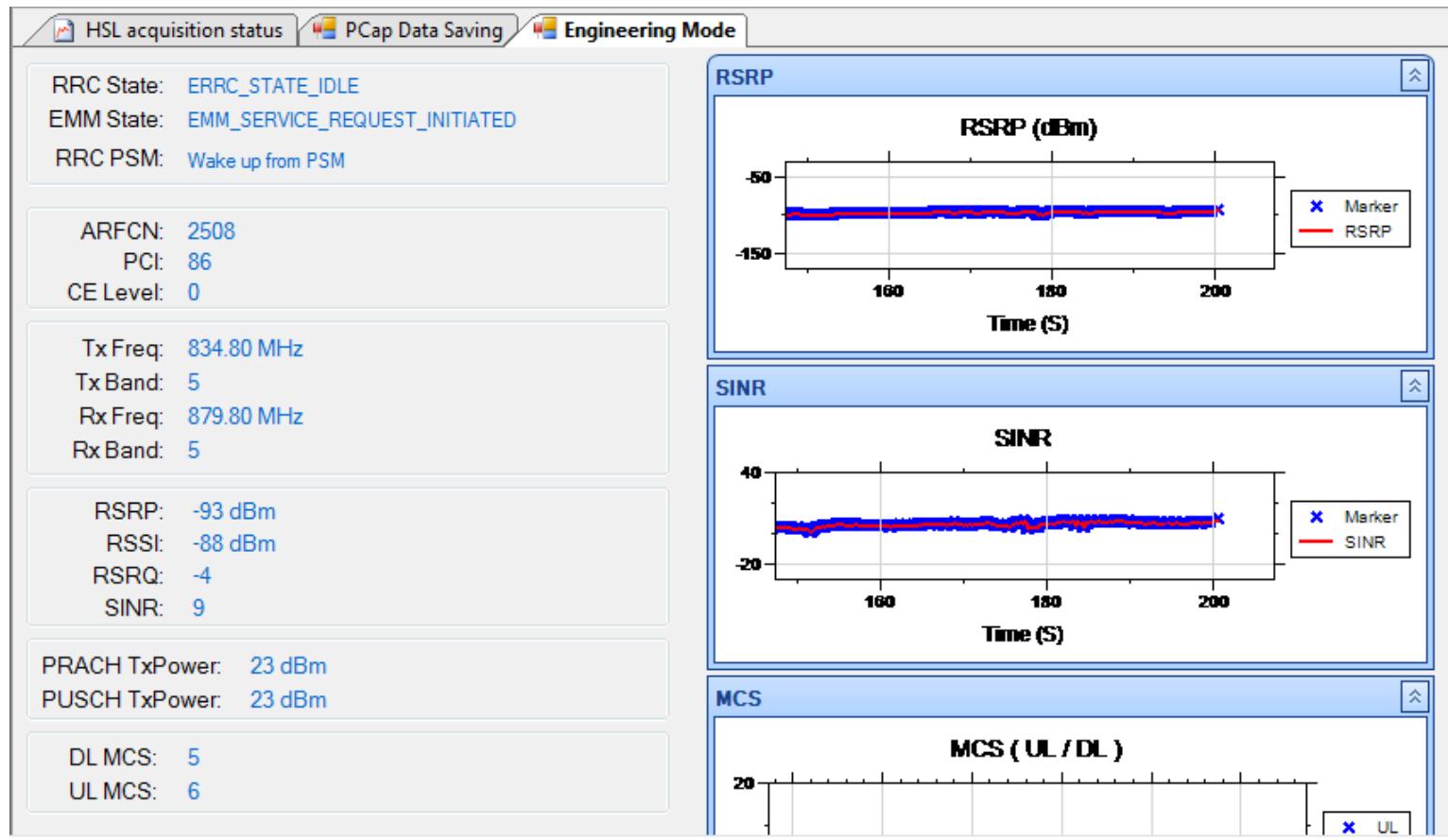
No.	Time	Source	Destination	Protocol	Length	Info
→ 1	131.099...	10.173.230.180	182.150.27.21	ICMP	92	Echo (ping) request
← 2	136.460...	182.150.27.21	10.173.230.180	ICMP	92	Echo (ping) reply
3	137.479...	10.173.230.180	182.150.27.21	ICMP	92	Echo (ping) request
4	142.479...	182.150.27.21	10.173.230.180	ICMP	92	Echo (ping) reply
5	143.490...	10.173.230.180	182.150.27.21	ICMP	92	Echo (ping) request
6	149.550...	182.150.27.21	10.173.230.180	ICMP	92	Echo (ping) reply
7	150.560...	10.173.230.180	182.150.27.21	ICMP	92	Echo (ping) request
8	154.629...	182.150.27.21	10.173.230.180	ICMP	92	Echo (ping) reply
9	155.650...	10.173.230.180	182.150.27.21	ICMP	92	Echo (ping) request
10	162.310...	182.150.27.21	10.173.230.180	ICMP	92	Echo (ping) reply

# Time Display Format



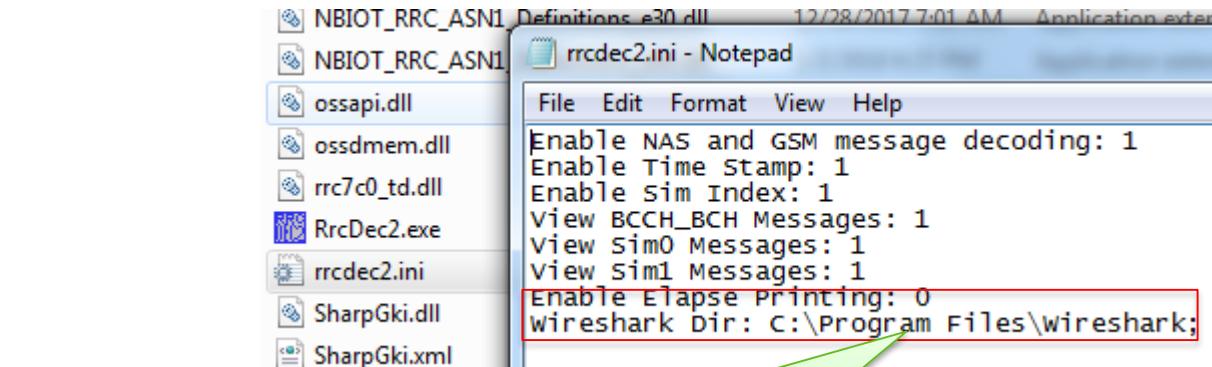
# Engineering Mode

You can get some messages about EVB status,  
Include: RRC state , EMM State, Tx/Rx Freq, Tx/Rx Band etc



# Wireshark Dir

- 1, Wireshark installation default path: C:\Program Files (**Recommend**)
- 2, If you want to install Wireshark on other paths. Please modify the rrcdec2.ini. path: nbiot\_tools\_customer\_release\_xxx\nbiot\tools\Projects\3GPS, Otherwise, Extract Pcap Data will be failed.



Modify the Dir: Wireshark installation path

# Genie UE Core Dump Capture

- Genie can automatically acquire and save a UE Core Dump to file

Gives the human readable part of the core dump.  
This is displayed provided it can be found at the start of the dump and follows a fairly strict format.

```
EMMI DLL Collecting Core Dump
Received 968288 bytes, 491 blocks
Log will be saved to
D:\Users\mtk08922\rbiot_tools_release_20170504\rbiot\tools\core\genie\UeCoreDumps\CoreDump_0117-05-10_23-07-22.txt

Snapshot of the dump:
=====
In MemManage Fault Handler
SCB->CFSR = 0x00000082
Memory Management fault: Data access violation @0x00000000
SCB->MMFAR = 0x00000000
r0 = 0x00000002
r1 = 0x00000001
r2 = 0x0000dead
r3 = 0x00000000
r4 = 0x00000015
r5 = 0xa5a5a5a5
r6 = 0xa5a5a5a5
r7 = 0xa5a5a5a5
r8 = 0xa5a5a5a5
r9 = 0xa5a5a5a5
r10 = 0xa5a5a5a5
r11 = 0xa5a5a5a5
r12 = 0x0400004d
lr = 0x100a4281
pc = 0x100a42a4
psr = 0x61000000
EXC_RET = 0xffffffd
CONTROL = 0x00000002
MSP = 0x0400fe0
PSP = 0x10205900
sp = 0x10205900

N.B.1. Download may take some time.
N.B.2. Can cancel core dump acquisition by clicking Genie's Start/Stop toolbar button.
```

[Copy To Clipboard](#)

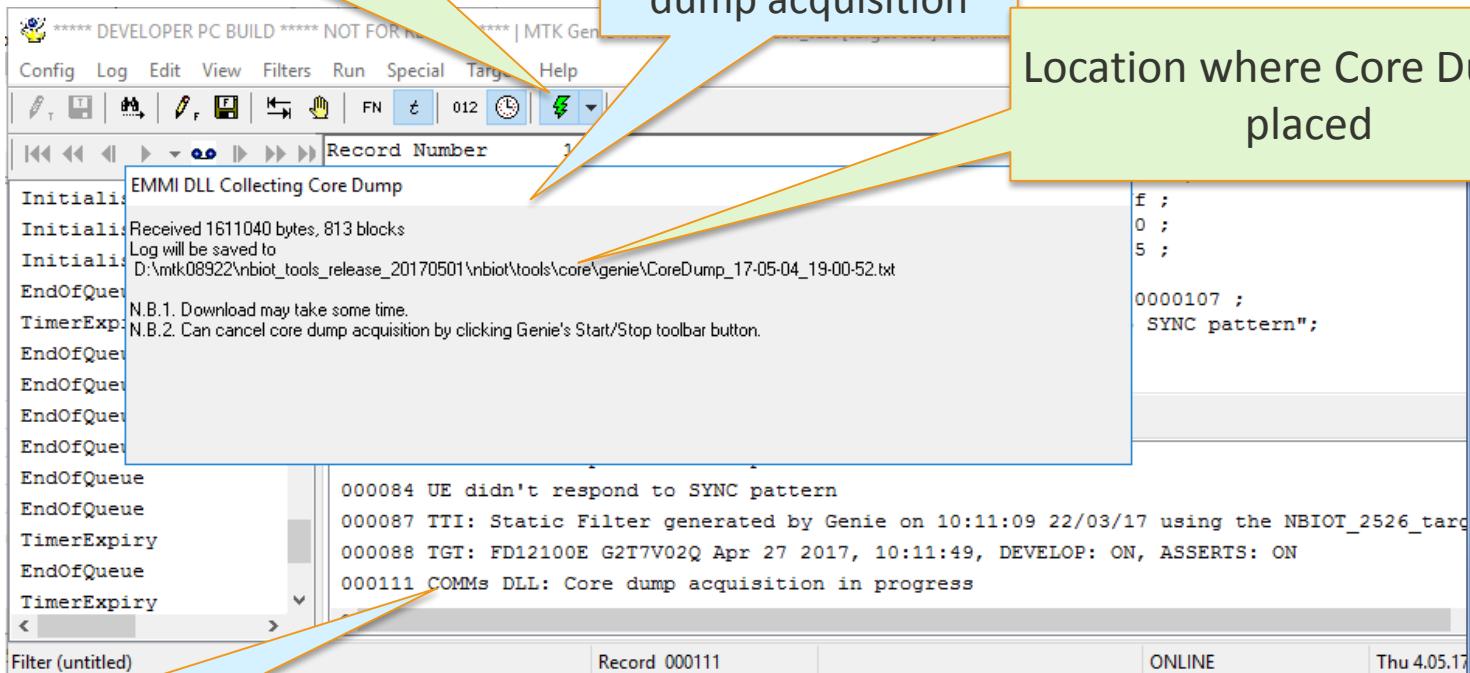
# Core dump in progress dialog

Click here to abort Core Dump

2

Pop-up window gives progress of core dump acquisition

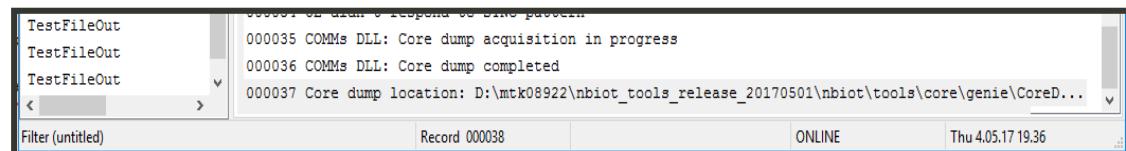
Location where Core Dump is placed



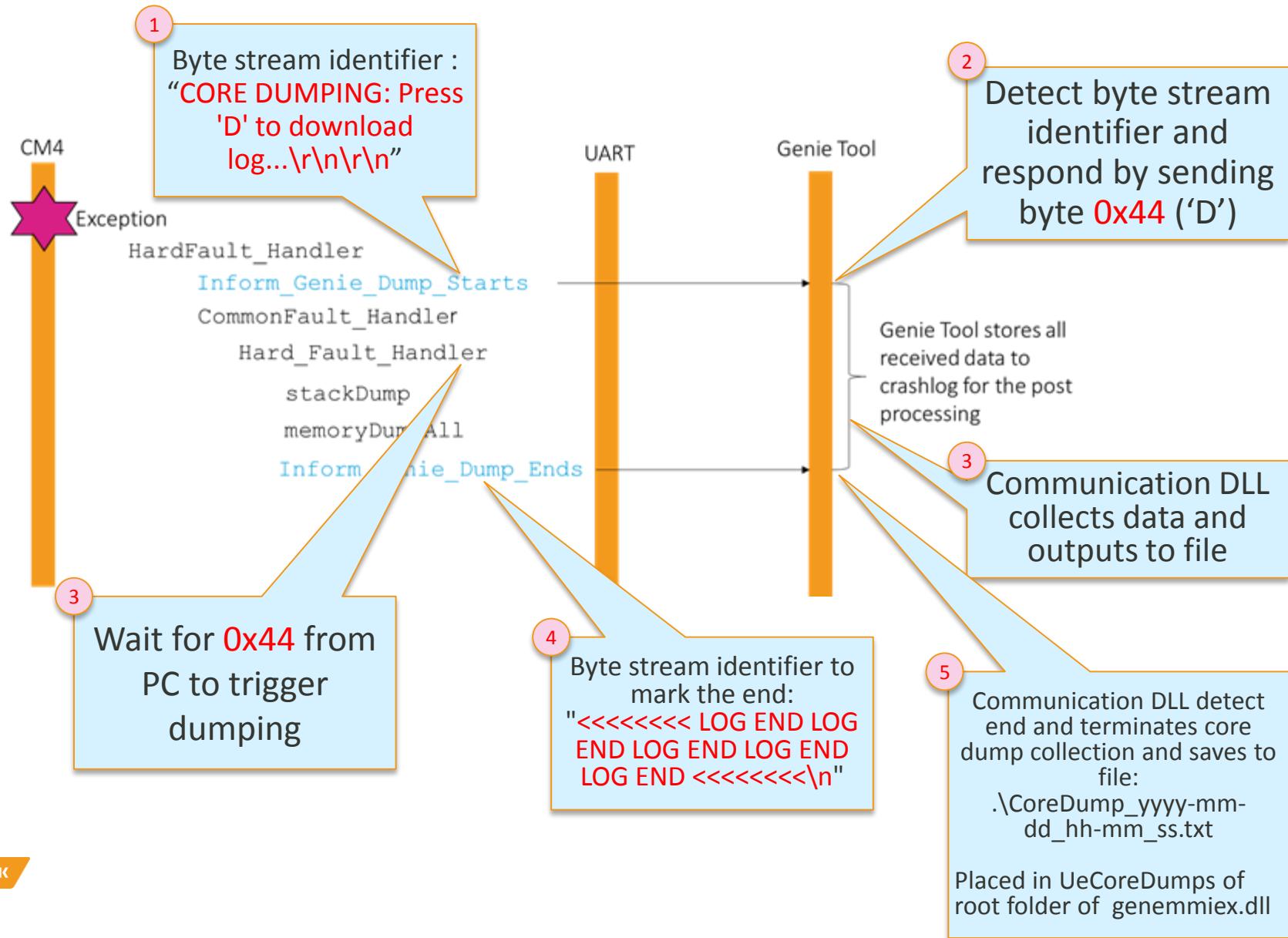
1

GKI trace indicates that a core dump has been detected

- On completion of the Core Dump, GKI trace will give the file location



# Overview of core dump on Serial port



# Q&A

Q1: GKI Traces display: Waiting for connection to UE.

A: Please check the following points:

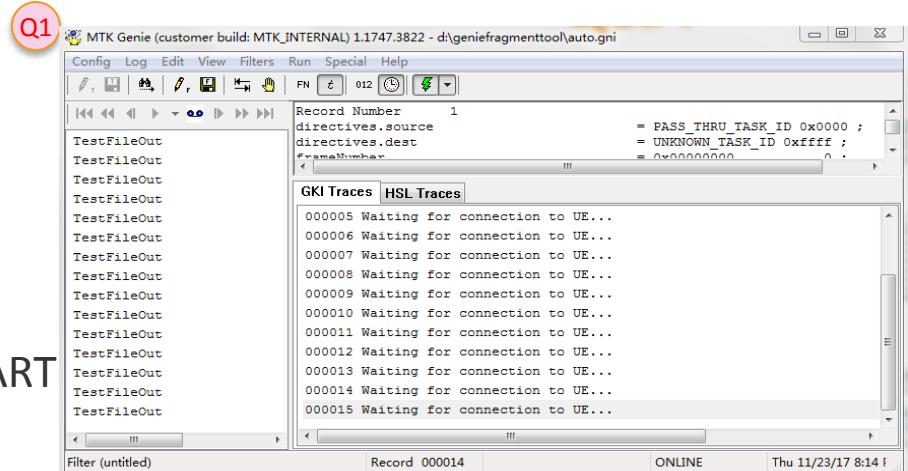
1. Check the GKI com port, Baud rate.
2. Check the HSL com port, Baud rate.
3. Reset target.
4. Check target configuration.
5. AT cmd for serial port to change USB/UART Port.

Q2: the signals have a line through it e.g.  
~~TestFileOut~~.

A:

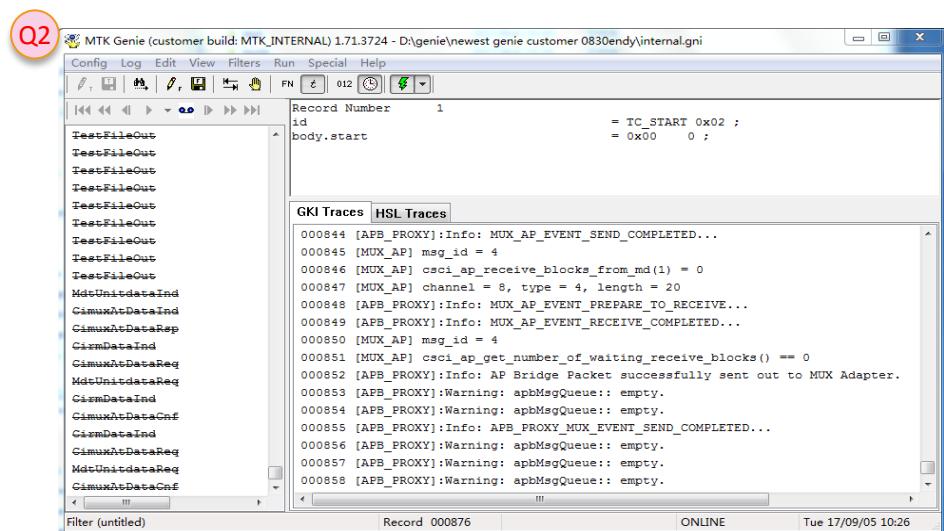
1. Please check the filters which contain this signals set **highlight**.
2. Check the edit filters>format>**Show Disabled Signals** ticks or not.

Q1



```
MTK Genie (customer build: MTK_INTERNAL) 1.1747.3822 - d:\geniefragmenttool\auto.gni
Config Log Edit View Filters Run Special Help
Record Number 1
directives.source = PASS_THRU_TASK_ID 0x0000 ;
directives.dest = UNKNOWN_TASK_ID 0xffff ;
frameNumber = 0x00000000 . .
GKI Traces HSL Traces
000005 Waiting for connection to UE...
000006 Waiting for connection to UE...
000007 Waiting for connection to UE...
000008 Waiting for connection to UE...
000009 Waiting for connection to UE...
000010 Waiting for connection to UE...
000011 Waiting for connection to UE...
000012 Waiting for connection to UE...
000013 Waiting for connection to UE...
000014 Waiting for connection to UE...
000015 Waiting for connection to UE...
Filter (untitled) Record 000014 ONLINE Thu 11/23/17 8:14 f...
```

Q2



```
MTK Genie (customer build: MTK_INTERNAL) 1.71.3724 - D:\genie\newest genie customer 0830endy\internal.gni
Config Log Edit View Filters Run Special Help
Record Number 1
id = TC_START 0x02 ;
body.start = 0x00 0 ;
GKI Traces HSL Traces
000844 [APB_PROXY]:Info: MUX_AP_EVENT_SEND_COMPLETED...
000845 [MUX_AP] msg_id = 4
000846 [MUX_AP] csci_ap_receive_blocks_from_md(1) = 0
000847 [MUX_AP] channel = 8, type = 4, length = 20
000848 [APB_PROXY]:Info: MUX_AP_EVENT_PREPARE_TO_RECEIVE...
000849 [APB_PROXY]:Info: MUX_AP_EVENT_RECEIVE_COMPLETED...
000850 [MUX_AP] msg_id = 4
000851 [MUX_AP] csci_ap_get_number_of_waiting_receive_blocks() == 0
000852 [APB_PROXY]:Info: AP Bridge Packet successfully sent out to MUX Adapter.
000853 [APB_PROXY]:Warning: apbMsgQueue:: empty.
000854 [APB_PROXY]:Warning: apbMsgQueue:: empty.
000855 [APB_PROXY]:Info: APB_PROXY_MUX_EVENT_SEND_COMPLETED...
000856 [APB_PROXY]:Warning: apbMsgQueue:: empty.
000857 [APB_PROXY]:Warning: apbMsgQueue:: empty.
000858 [APB_PROXY]:Warning: apbMsgQueue:: empty.
Filter (untitled) Record 000876 ONLINE Tue 17/09/05 10:26 ...
```

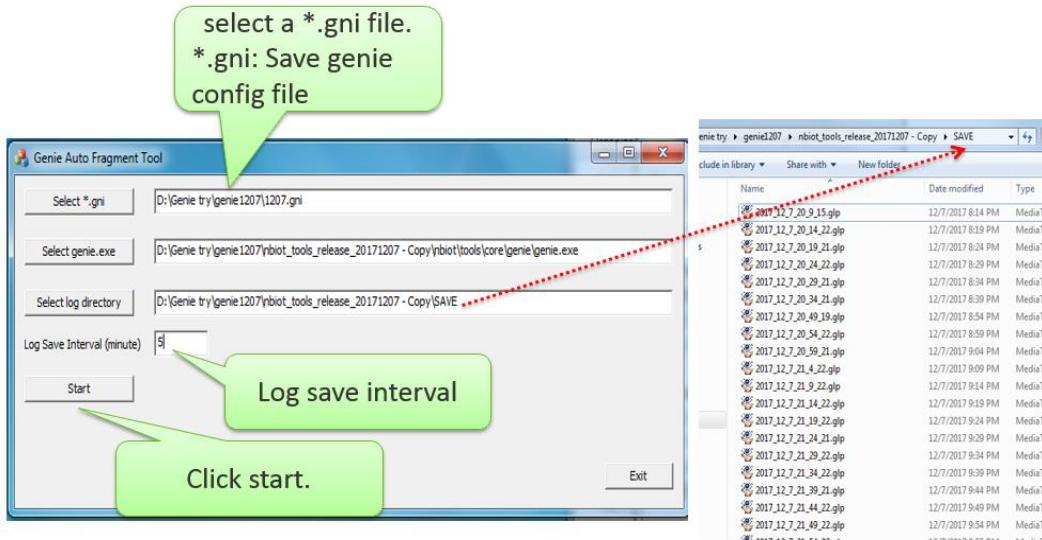
# Q&A

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.

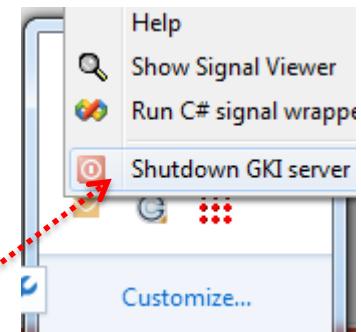
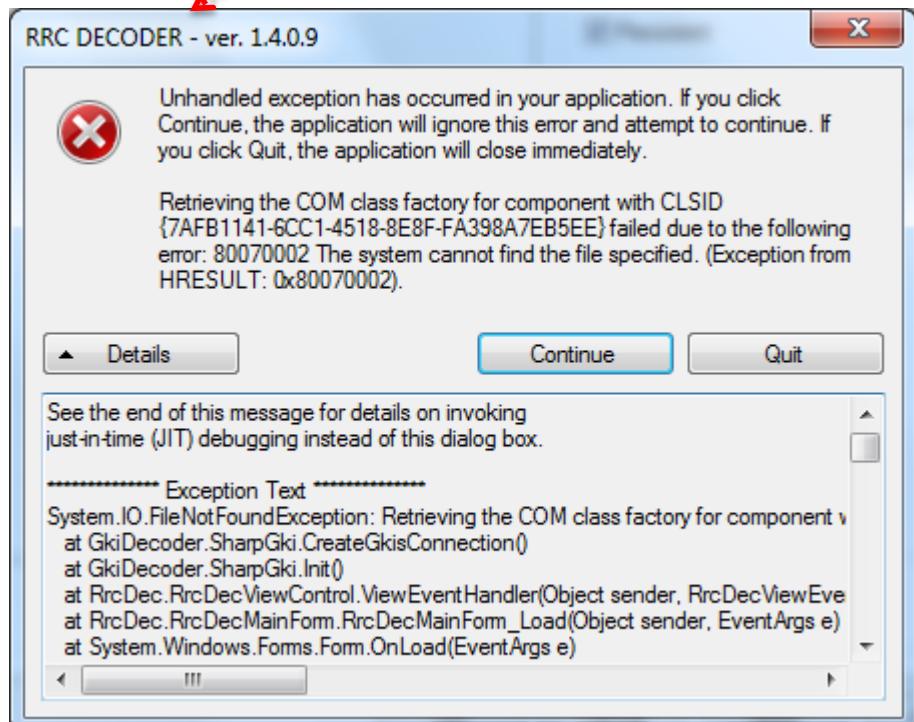
Q4: Taking a long time to capture log ,and save the .GLP file is too large.

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.



# Q&A

Q5: If you open Rrc and Nas message Decoder displays the following pop-up.



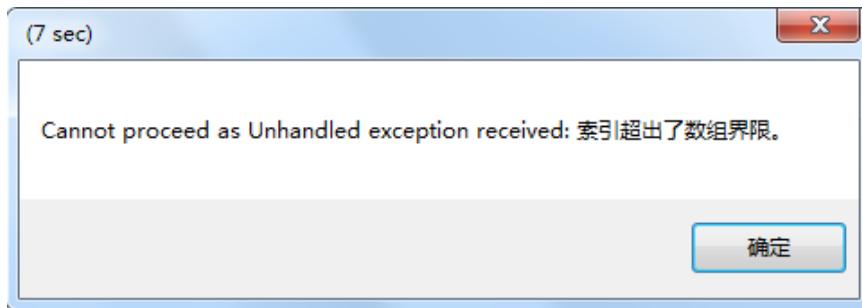
1, Shutdown GKI server

2, Click the **GKIS.exe** from path:  
nbiot\_tools\_customer\_release\_\nbiot\tools\core\gkis.

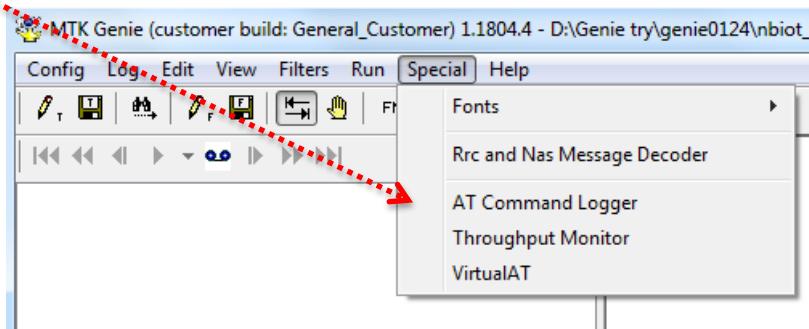
3, Open Rrc and Nas message Decoder again.

# Q&A

Q6: Open AT CommandLogger/Throughput Monitor/Virtual AT , will show a error message .



A: Using AT CommandLogger/Throughput Monitor/Virtual AT, please open it by **Special menu**, not click \*.exe by oneself on path :nbiot\_tools\_customer\_release\_xxx\ nbiot\ tools\ core\ genie\ tools.

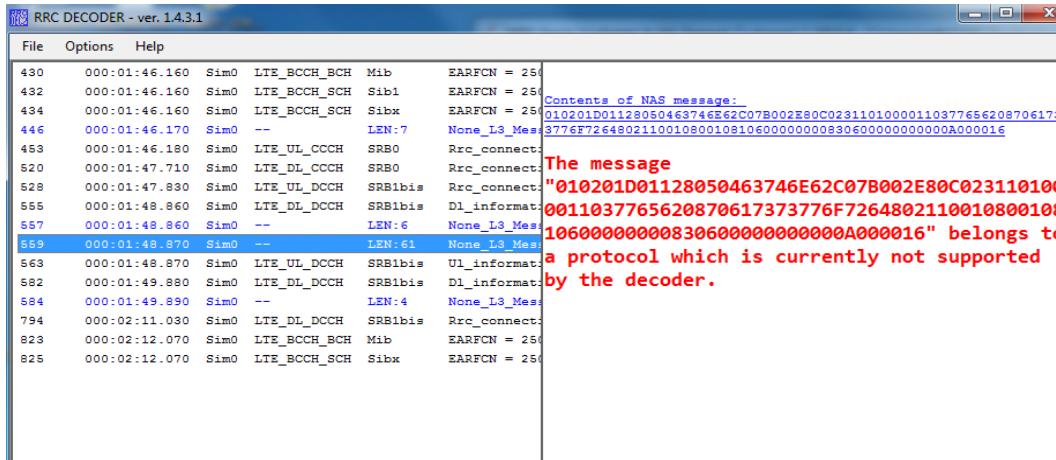


- Virtual AT need to install com0com driver, please refer to [VirtualAT](#)

# Q&A

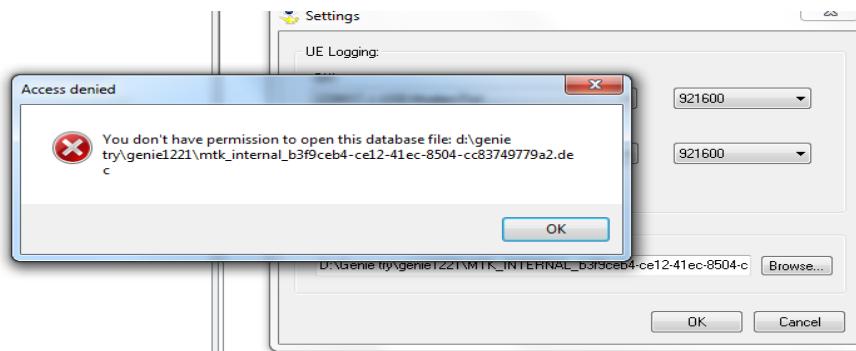
Q7: RRCDEC2 cannot decode NAS message

A : This problem is caused by the mismatch between \*.dec and target software.



Q8: genie cannot load a \*.dec.

A : This problem is caused by the mismatch between \*.dec and genie tool version. Please select the corresponding \*dec.



The Mediatek logo is positioned within a yellow trapezoidal shape. The word "MEDIATEK" is written in white, bold, sans-serif capital letters.

MEDIATEK

*everyday genius*