BC95-D UEMonitor User Guide

NB-IoT Module Series

Rev. BC95-D_UEMonitor_User_Guide_V1.0

Date: 2018-04-25

Status: Released

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About the Document

History

Revision	Date	Author	Description
1.0	2018-04-25	Janet YANG/ Hayden WANG	Initial

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1 Introduction

This document mainly introduces how to use the UEMonitor tool to view logs via a debug port for the Quectel BC95-D module on Window 7 system.

2 Tool Installation

Customers need to install the “Microsoft .NET Framework” (4.5.2 version or later) on PC before installing the UEMonitor.

2.1. Microsoft .NET Framework Installation

Step 1: Double-click “microsoft.net framework 4.5.2.exe” to install the “Microsoft .NET Framework”.

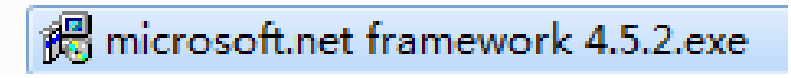

Figure 1: Microsoft .NET Framework Installation Package

Step 2: Wait until the following window comes up, and then click “**I have read and accept the license terms.**” and “**Install**” as shown below.

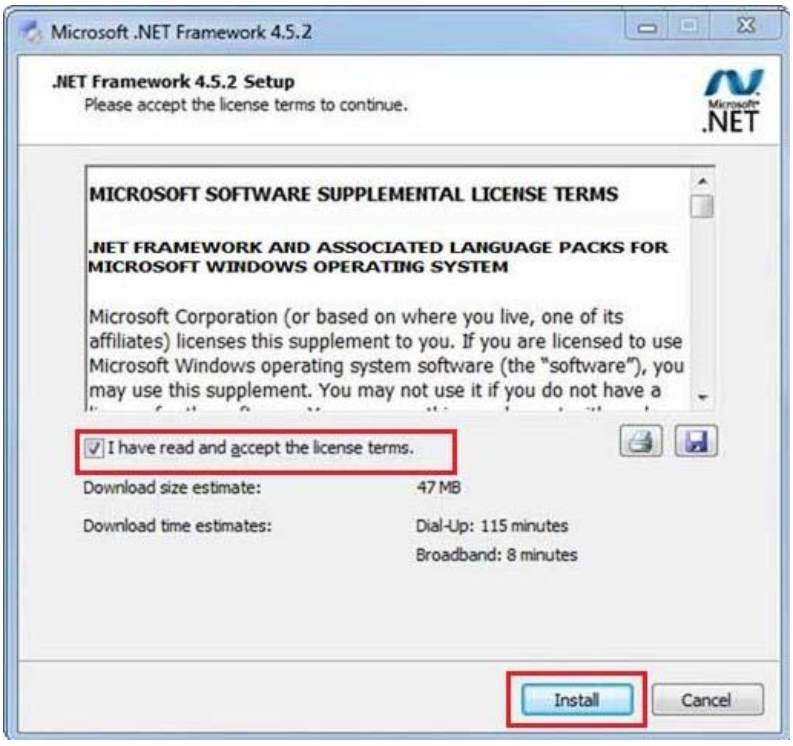

Figure 2: License Agreement for Microsoft .NET Framework Installation

Then please wait for the program to install.

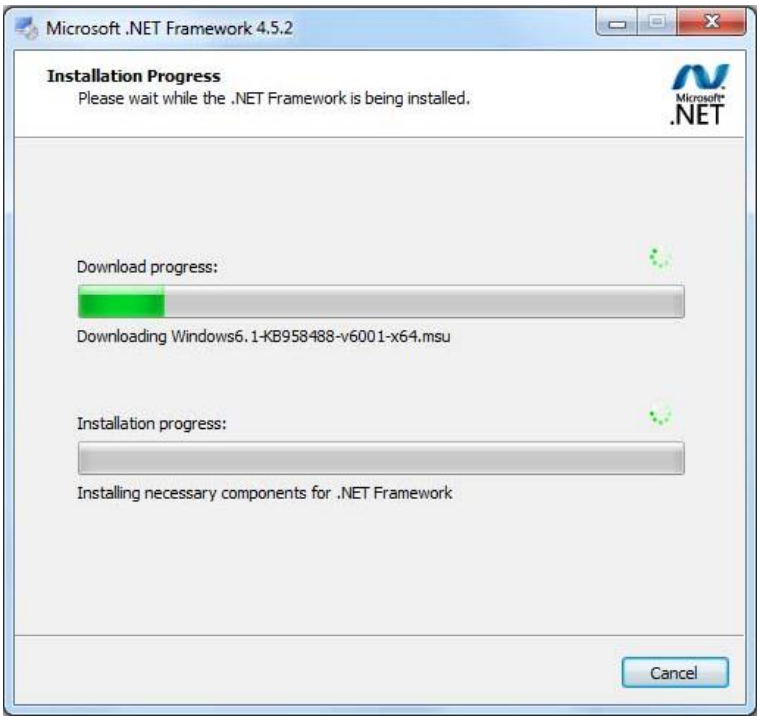

Figure 3: Microsoft .NET Framework is Installing

Step 3: Click "**Finish**" to accomplish installation.

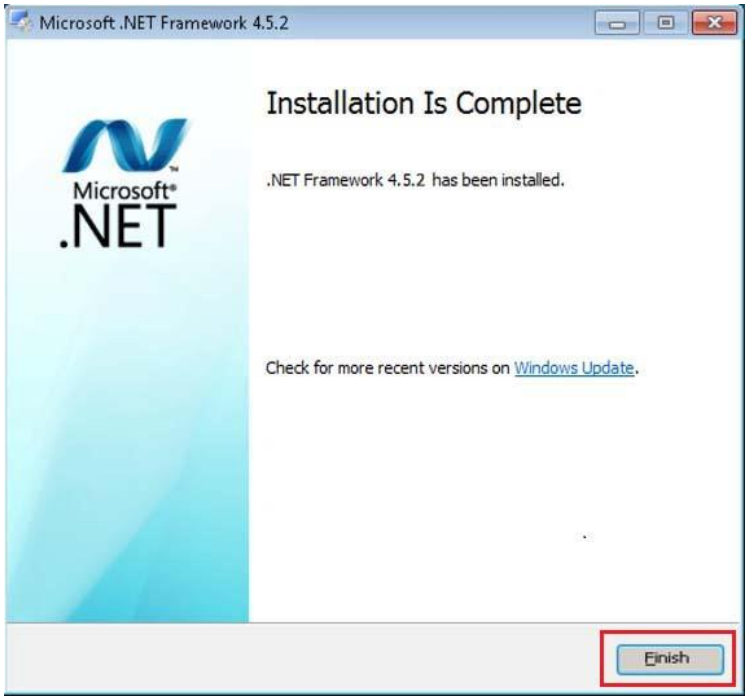

Figure 4: Microsoft .NET Framework is Successfully Installed

2.2. UEMonitor Installation

Step 1: Double-click the installation package, and then the installation interface shown as below will pop up. Click "**Next**" and wait during the installation.

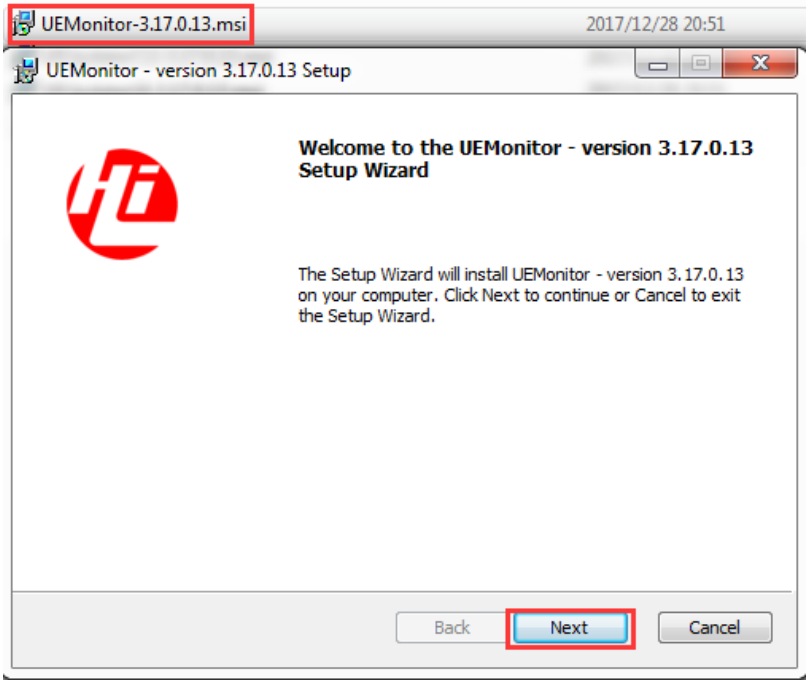

Figure 5: UEMonitor Setup Interface

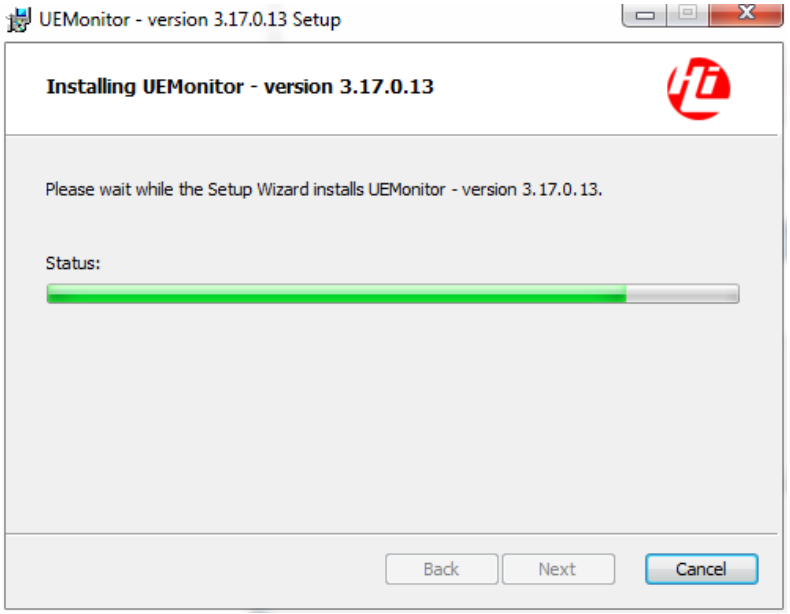

Figure 6: Installing UEMonitor

Step 2: Click "**Finish**" to finish the installation.

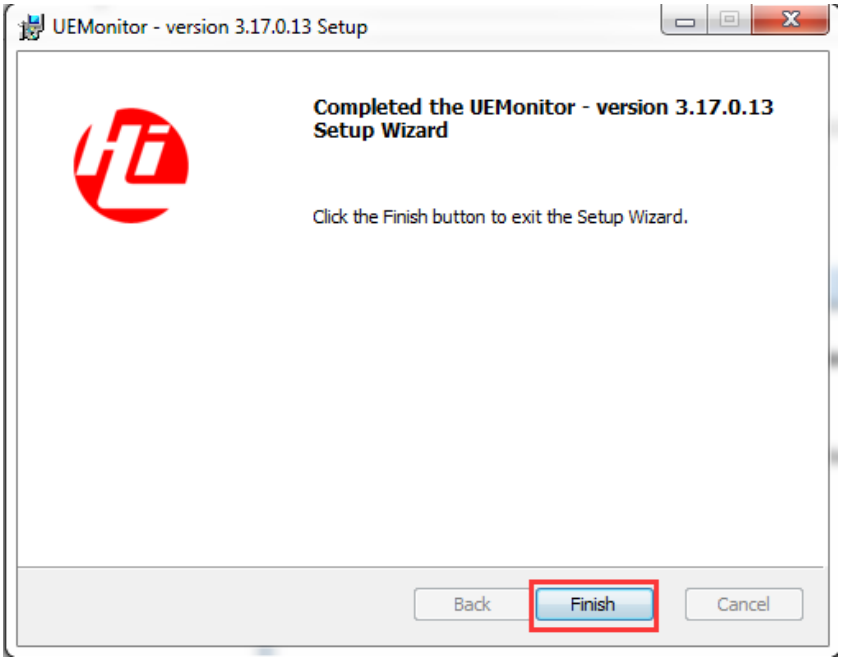

Figure 7: Installation is Completed

Step 3: After installation, the following icon will be shown on the desktop.

Figure 8: UEMonitor Desktop Icon

3 Capture Logs

This chapter mainly introduces how to use the UEMonitor tool to capture logs.

Step 1: Open the tool, and then the main interface will be shown as below.

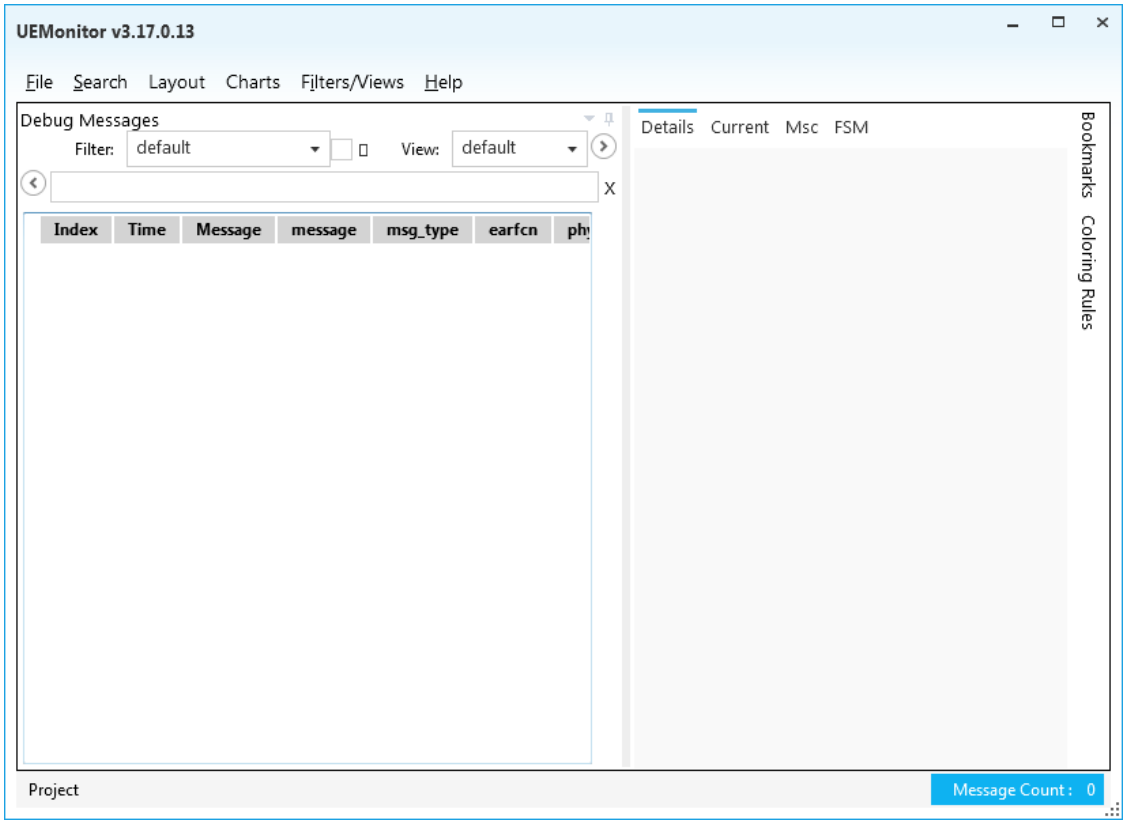

Figure 9: Main Interface of UEMonitor

Step 2: Create a new project by clicking "**New Project**" in the drop-down list of "**File**" and choose "**From UE debug port**".

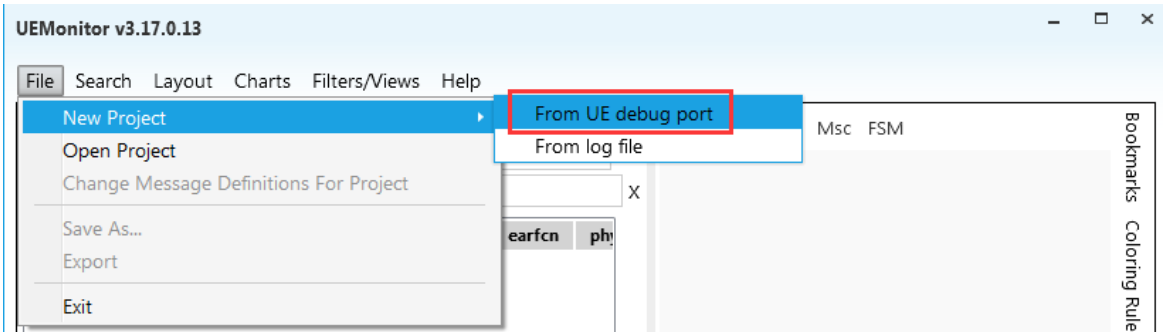

Figure 10: Create a New Project

Step 3: Select a debug port and choose the *.fwpkg* or *.xml* file in the firmware package.

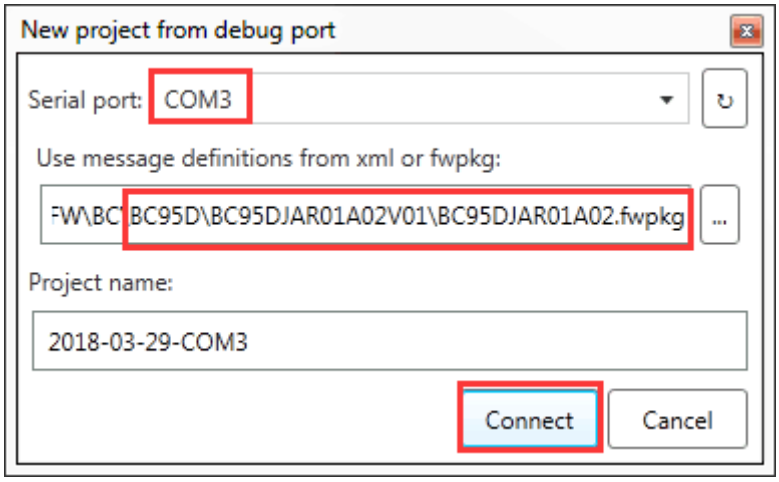

Figure 11: Select a Debug Port and Use Message Definitions

Then click "**Connect**", and the log information can be viewed from the interface.

NOTES

1. The logs will be automatically saved into "C:\Users\xxx\Documents\UEMonitor\Projects" path.
2. Please note that the module should be powered on before connection.

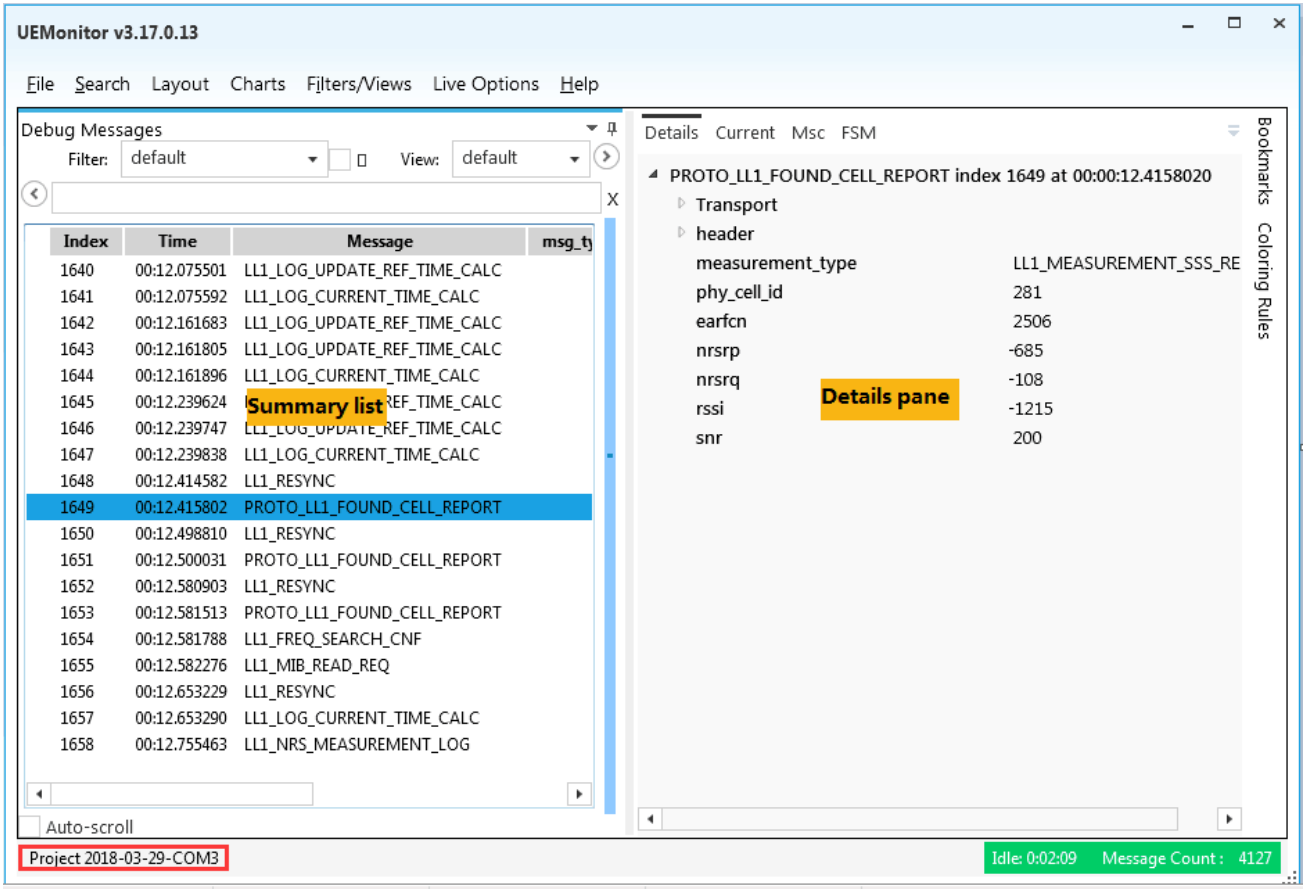

Figure 12: Log Information and Project Name Shown after Connection

4 Description of Filters and Summary List

By default, the summary list shows all the messages in the logs. And a "filter" can be used to enable the display of only a subset of a message.

As illustrated in the figure below, applying the filter "**ll1_nrs_measurement_log.snr>150**" shows only the "**LL1_NRS_MEASUREMENT_LOG**" messages with an SNR greater than 150.

The blue areas in the map on the right side of the display show where these messages appear in the overall logs. The green bar indicates how much of the total logs is spanned by the messages in the summary list. Customers can click anywhere on the map to move to that part of the log, and use page-up/down and cursor-up/down to navigate by smaller amounts.

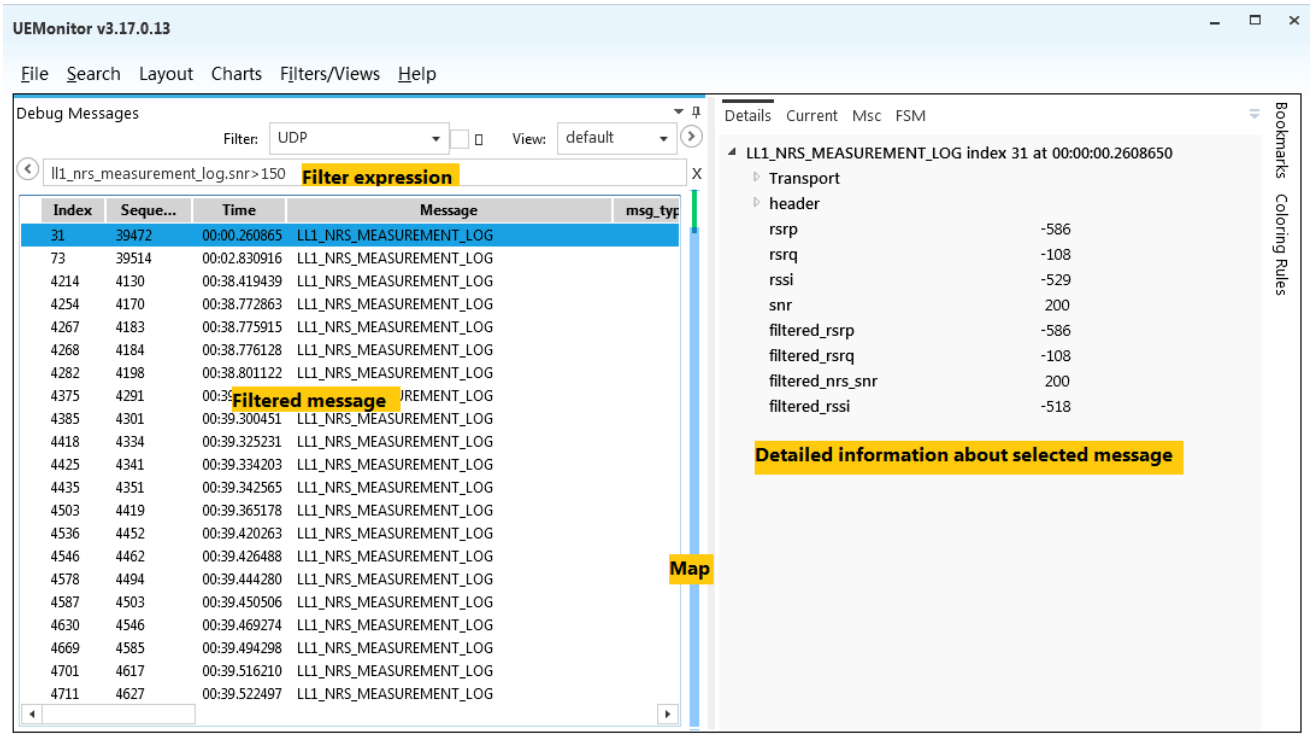

Figure 13: Applying a Filter

4.1. Filter Types

A number of different expression types can be used in a filter:

- An expression such as "**LL1**" will match all messages that include the substring “**LL1**” within the message name.
- An expression such as "**ll1_log_current_time_calc.hfn_ref == 755**" applies a logical test to a particular message field. In such case, the filter matches "**ll1_log_current_time_calc**" message where the "**hfn_ref**" field is equal to 755. The operators that are currently understood are **==**, **!=**, **>**, **<**, **>=** and **<=**.
- For enumerated types, the name of the value can be used instead of a number, e.g. "**proto_ll1_serving_cell_measurement_ind.header.dest == LAYER_PROTO**". The strings true and false can be used for Boolean fields.
- An expression such as "***.rssi**" will match all messages that contain an "rssi" field at the top level of the structure. "****.rssi**" (double asterisk) can be used to match messages that contain an "rssi" field at any level of the structure.
- The logical operators **&&**, **||**, and **!** along with brackets may be used to combine and group individual expressions into a larger query. For example: **LL1 || (*.rssi>=100)**.

For UEMonitor v3.17.0.13, it is possible to filter text fields using the following operators:

- **eq** searches for an exact match.
- **ne** searches of a mismatch.
- **~** searches for a substring.
- **!~** searches for messages that do not match the substring.

For example: **application_report.message ~** "**power**"

NOTE

The filter function is still in the development stage and subject to change.

4.2. Save and Reuse Filters

Filters can be saved or loaded by right-clicking on the filter-expression box, and filters are shared between projects.

Filters can also be quickly created by right-clicking on a field or message name in the details pane through selecting "**Apply as new filter**".

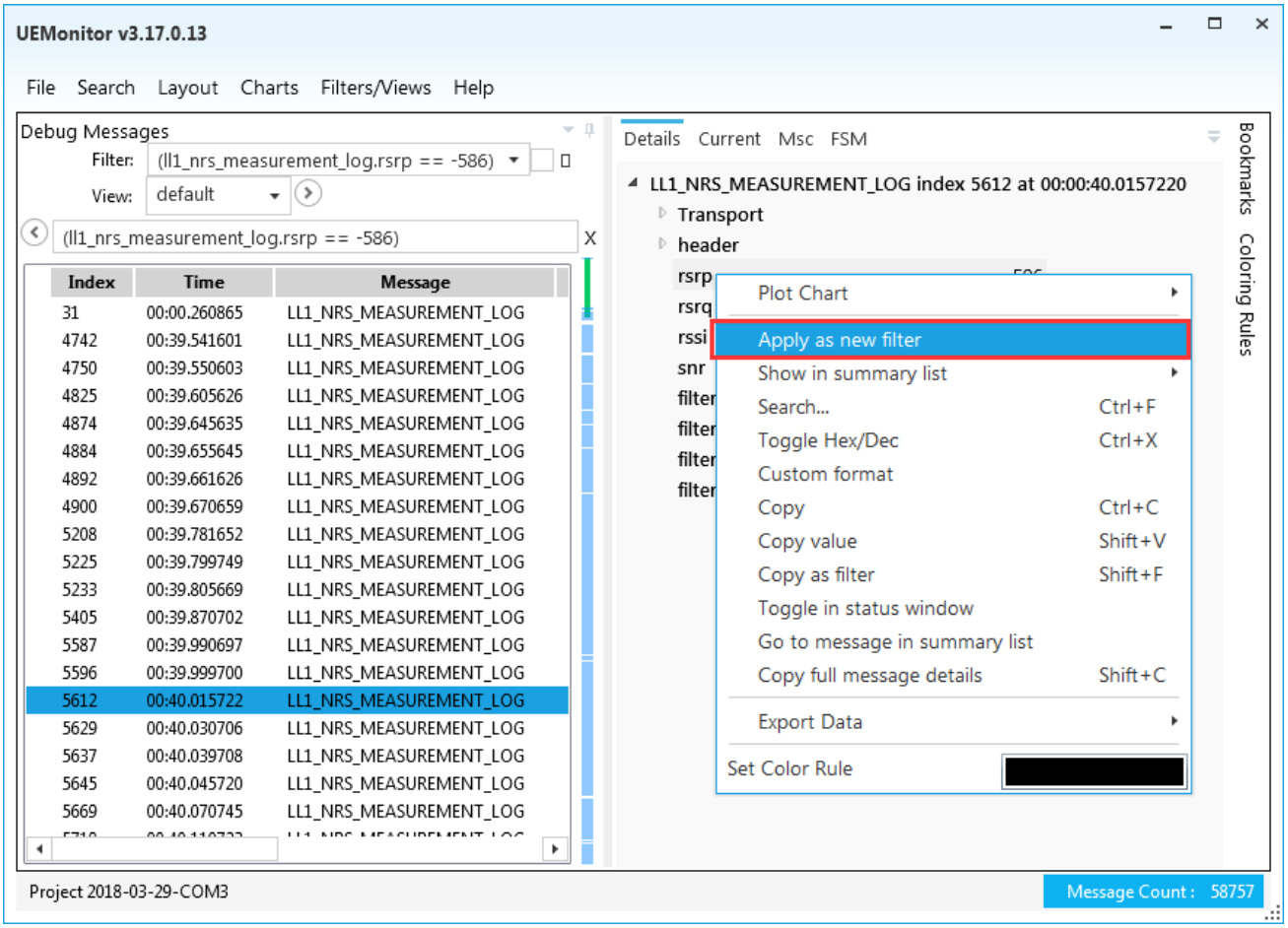

Figure 14: Apply as New Filter

4.3. Set Common Summary List Display

In the Debug Messages pane, right-click anywhere and then click "**Add common field…**" option to add some public information to the pane.

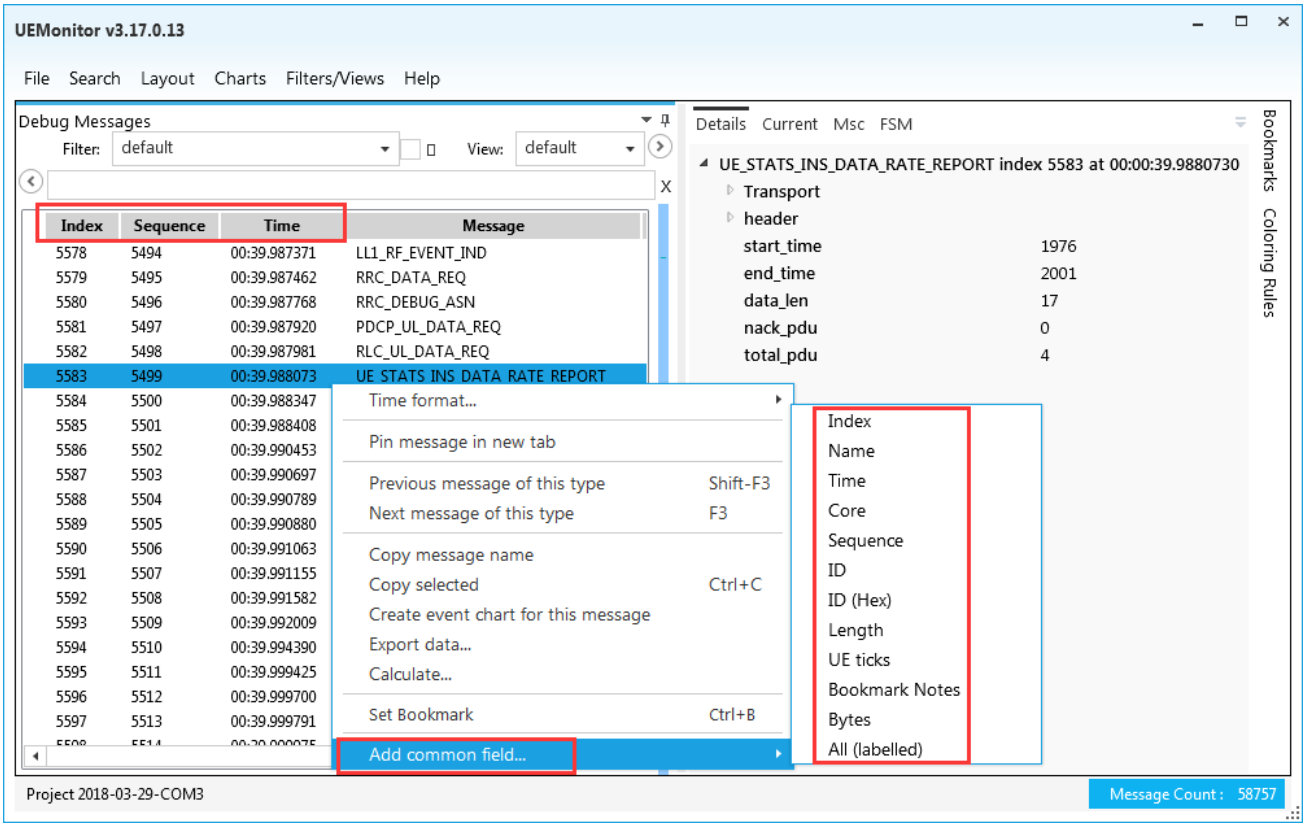

Figure 15: Set Common Summary List Display

4.4. Customize a Summary List Display

The summary list uses a column-based tabular view. Standard columns may be selected or removed by right-clicking on the header row.

Message fields may also be added to the summary display by right-clicking on a field in the details pane and selecting "**Show in summary list**". Column layouts may be saved for later-reuse by right-clicking towards the right side of the header row and selecting one of the template-management options. An example of adding the “rssi” column is shown below.

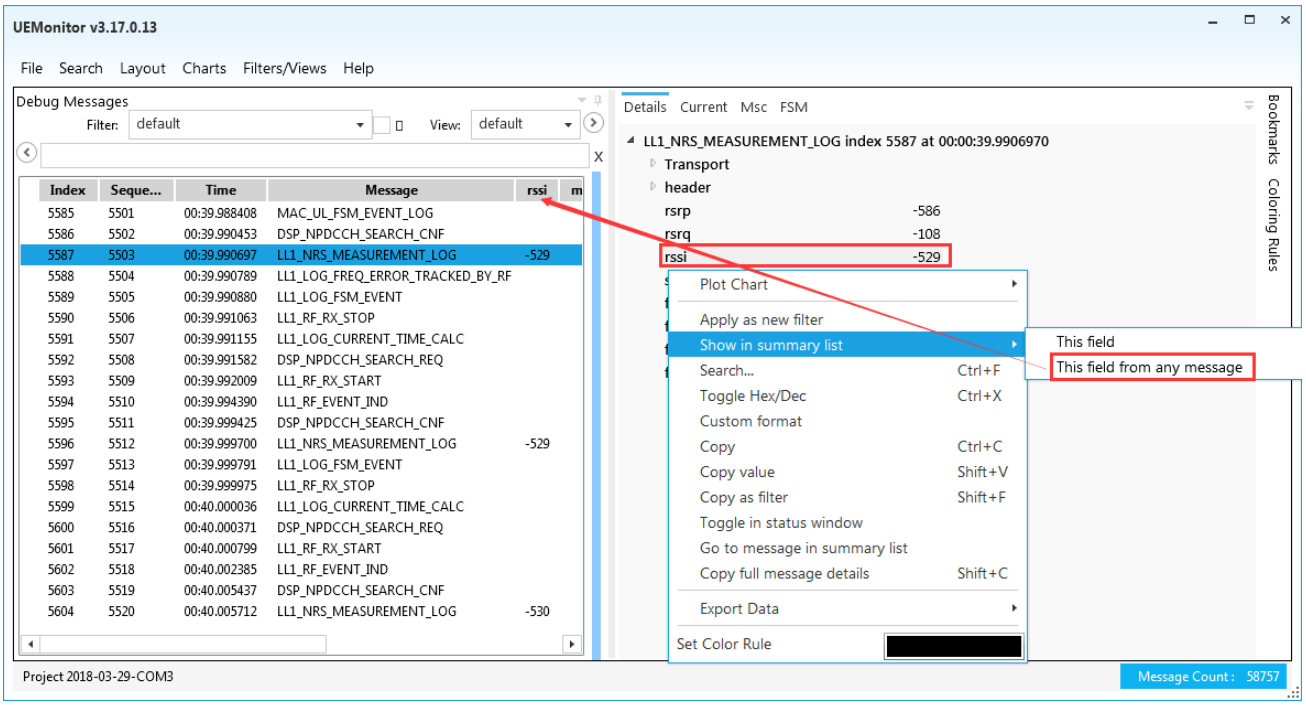

Figure 16: Adding "rssi" to the Summary Display

NOTE

The function of customizing a summary list display is still in the development stage and subject to change.

5 View Logs

5.1. Module Boot

After the module is powered on, the USIM card will be initialized, and related logs can be viewed by filtering keywords such as "**USIM_READ**" and "**BOOT**".

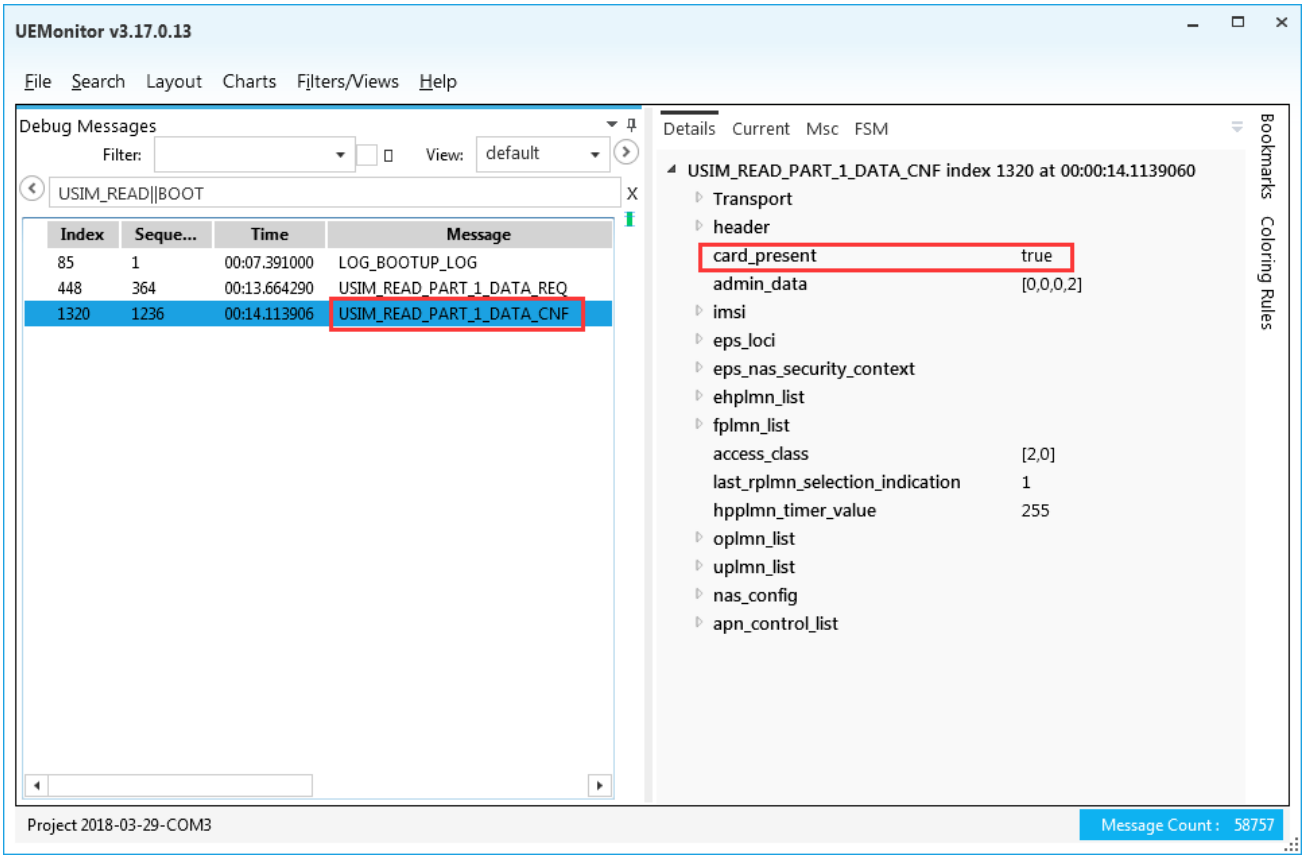

Figure 17: Logs about Module Boot

5.2. Network Searching

Once the module is initialized, the network searching process begins. Customers can judge if the module has found the cell by filtering the keywords such as "**CELL_SUIT**" and "**CELL_SELECT**".

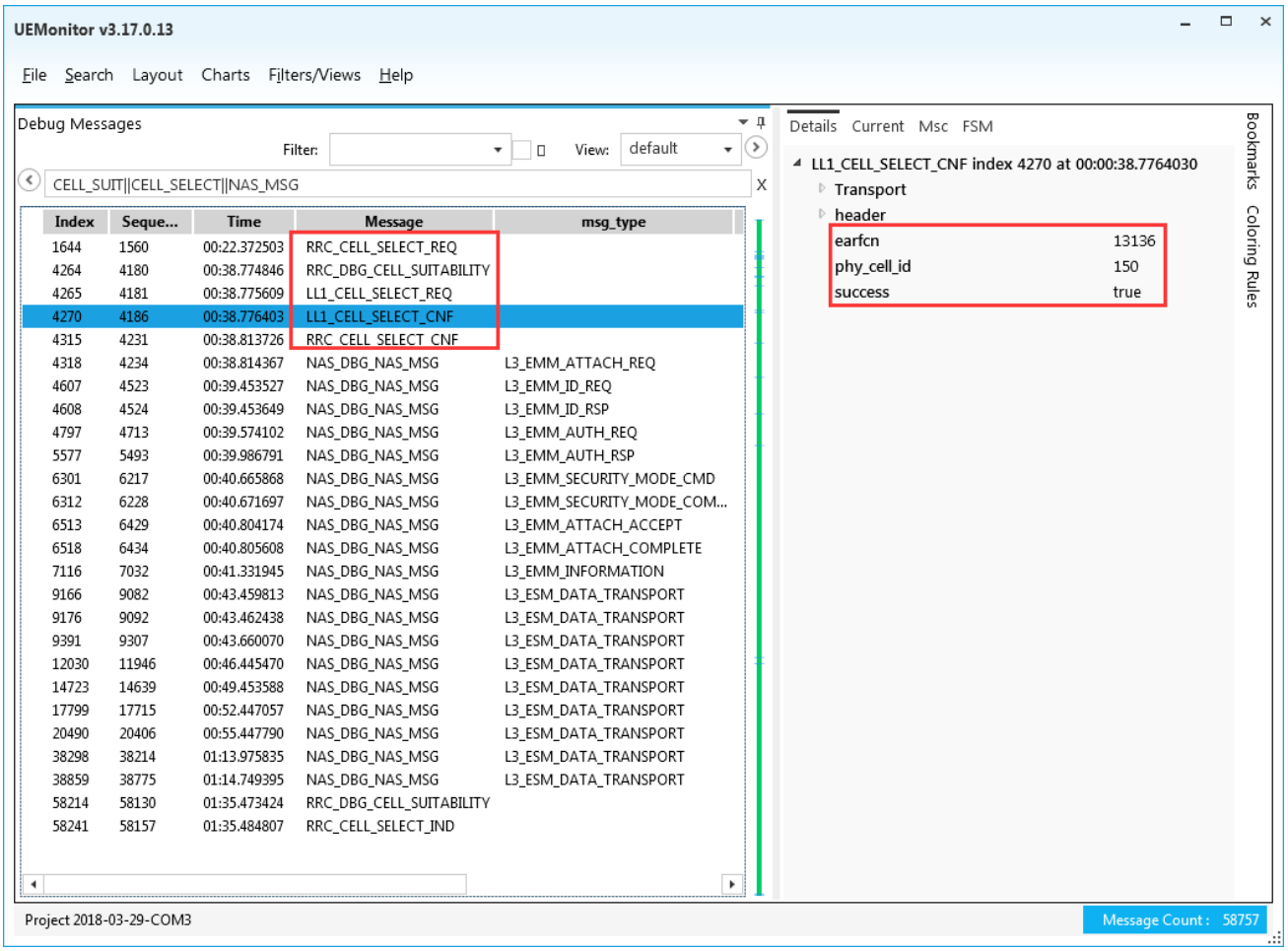

Figure 18: Logs about Network Searching

5.3. EPS Attachment

Entering "**NAS_MSG**" in the filter box can view the relevant information about the NAS layer of the module.

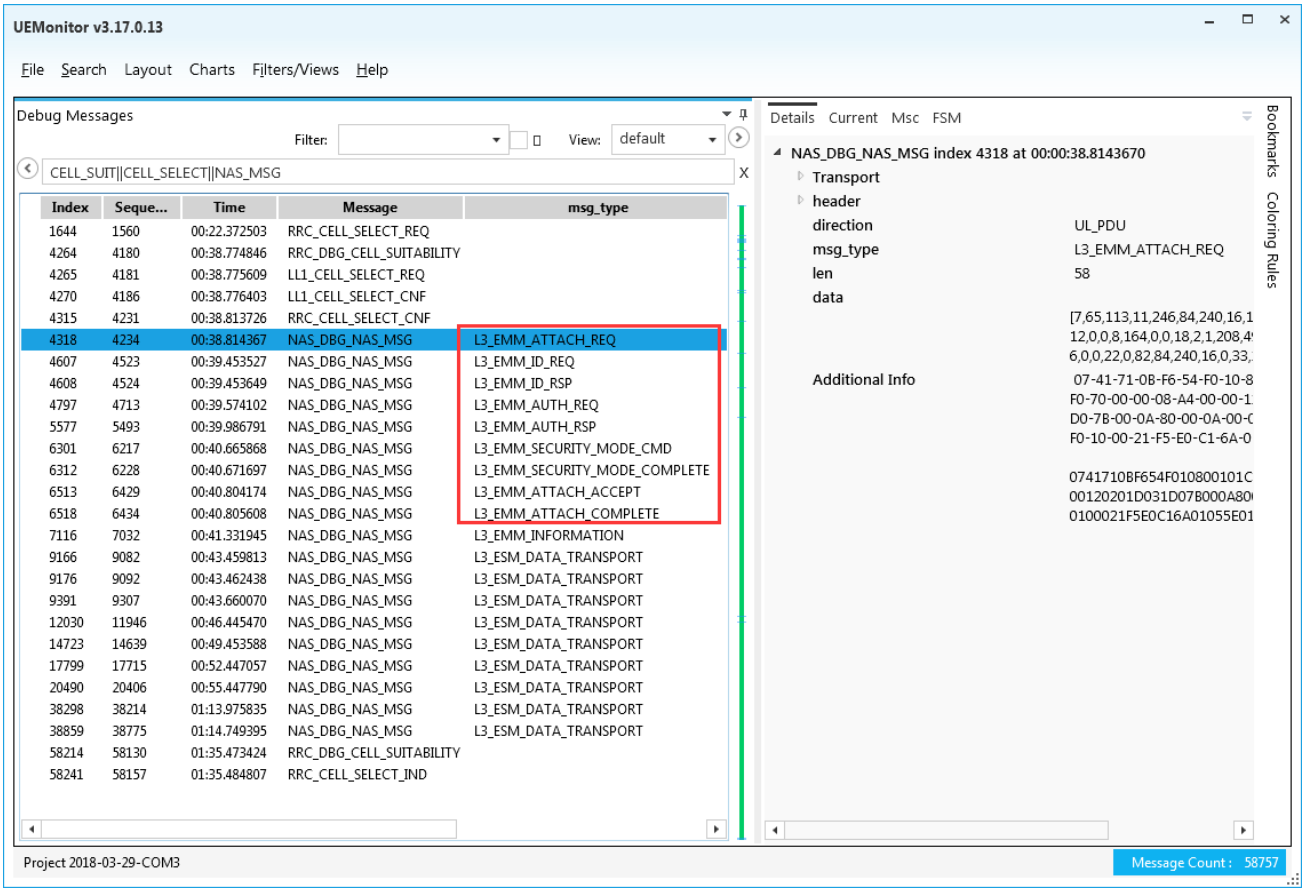

Figure 19: Logs about NAS Layer

5.4. Data Transmission

In addition, the "**NAS_MSG**" filter can also be used to view the application data transfer at the NAS layer.

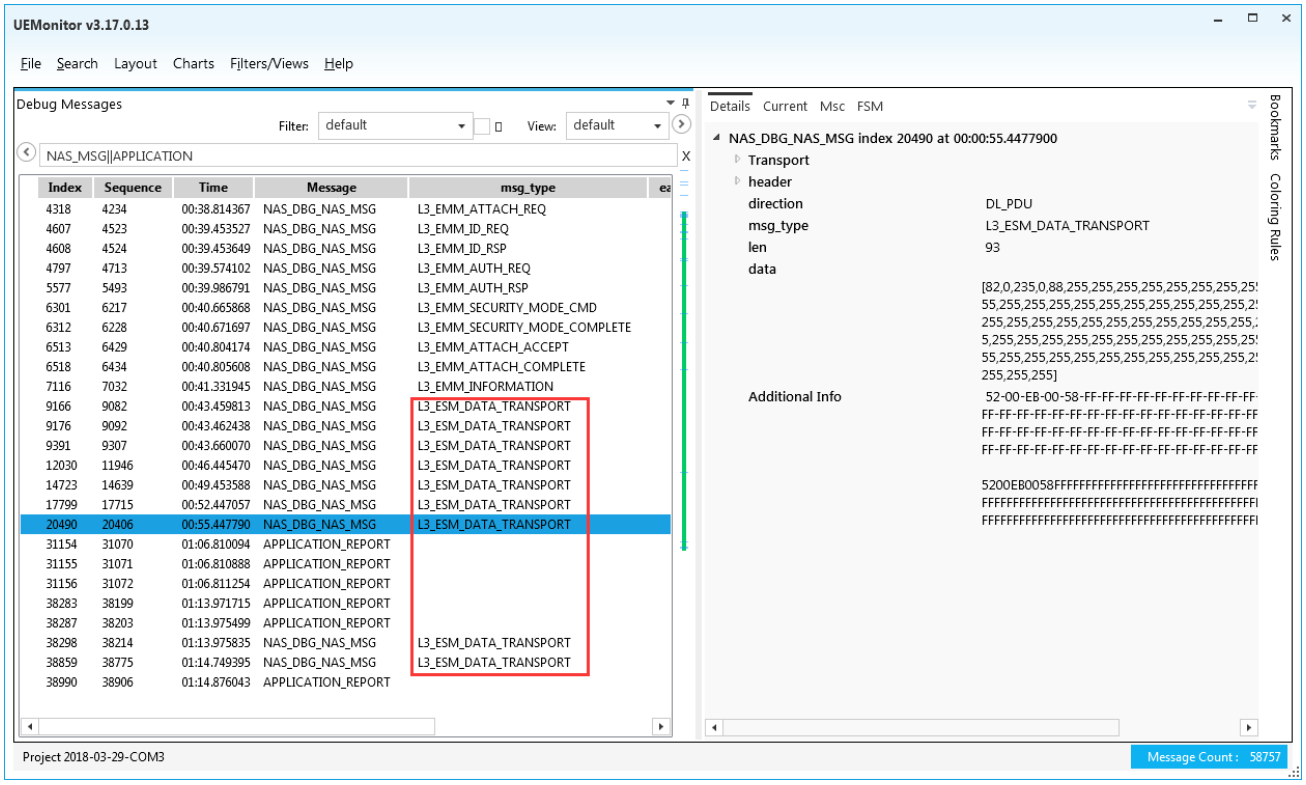

Figure 20: Logs about Data Transmission

5.5. Radio Layer Information

Entering "**asn**" in the filter box can view the relevant information about the radio layer of the module.

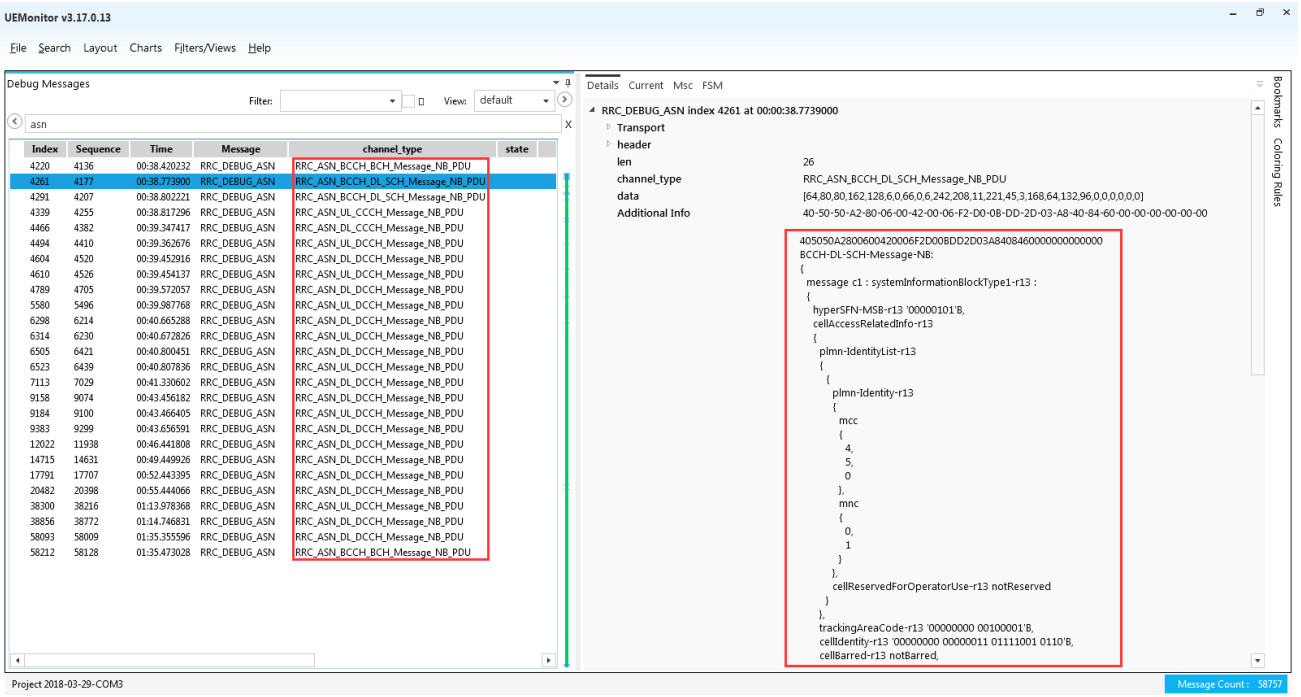

Figure 21: Logs about Radio Layer