ABOT TEST ORCHESTRATION SOLUTION: INSTALLATION GUIDE

Rebaca

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1. Summary of Installation Guide

This document is a guide for the installation of the ABot EPC, VoLTE or 5GC package as a stand-alone application. The Installation package contains a core package and an analytics package. System Requirements and installation steps are explained in this document along with the steps of installing and linking the ABot Analytics box. The license installation steps are also detailed out.

2. System Requirements/Prerequisites

ABot products are debian binaries that can be installed either on a bare metal host system or on any linux hypervisor based system, with Ubuntu 16.04 (Xenial) distribution.

2.1 Minimum hardware requirements:

- **ABot Core & ABot Analytics as Single Instance**
    - Quad-core CPU
    - 8 GB RAM
    - 250 GB disk
- **ABot Core Instance**
    - Dual-core CPU
    - 4 GB RAM
    - 250 GB disk
- **ABot Analytics Instance**
    - Dual-core CPU
    - 4 GB RAM
    - 250 GB disk

2.2 System Prerequisites:

- Internet Access
- Access to System Under Test via SCTP/TCP/UDP/IP
- Secure shell access
- Password less SSH access

3. Installation Procedure

3.1 Software and License Installation

1. The customer should open and download the ABot binary distribution from the link given in the email. The package should be downloaded into the target machine that has been identified for installation. The license for ABot will be provided via email, the license file (abot.lic) needs to be placed in the same directory as the exploded tar file with the Debian package. The install script will then copy that file to the installation location /etc/rebaca-test-suite/bin.

2. There are two packages ABot tar ball file & ABot-Analytics tar ball file, the files need to be extracted, the ABot tar ball contains the ABot core test orchestration tool and the ABot-Analytics tar ball contains the Analytics section which will give the user useful insights into the tested data, once the tar balls have been extracted one can see the following:
    a. ABot Debian package **[abot-volte-pro_<version>_all.deb], [abot-analytics_<>_all.deb]**
    b. An installation script **[install-abot.sh], [install-abot-analytics.sh],[install-abot-single-instance.sh]**
        Note: To untar - tar –xvzf abot-volte-pro_<version>_all.tar.gz

3.1.1   ABot core and ABot Analytics Installation

After extracting the tar balls, the user needs to run the installation script with the following commands

a. If one wants to install **ABot core** and **ABot Analytics** on same instance (single VM) , then run
    sudo ./install-abot-single-instance.sh

b. For Split Install (2 VM's) ABot Network Tool & Analytics separate
    a. First Install **Analytics** in one of the VM

    "Analytics depends on Elasticsearch database and since both Analytics Binary and Elastic binary is installed on the same box pass both Analytcis & Elasticsearch same IP address"

    Copy the **[abot-analytics_<>_all.deb] & [install-abot-analytics.sh]** to the respective instance and
    sudo ./install-abot-analytics.sh **"ABot-IP" "Elasticsearch IP"**

    * ABot IP (Network Tool Instance IP)

    Example:- sudo ./install-abot-analytics.sh single 192.168.xx.xxx 192.168.xx.xxx

    b. Next install **ABot core** in another VM

    "Analytics depends on Elasticsearch database and since both Analytics Binary and Elastic binary is installed on the same box pass both Analytcis & Elasticsearch same IP address"

    sudo ./install-abot.sh **"Analytics-IP"   "Elasticsearch IP"**

    * Analytics IP (Analytics VM IP)

    Example: - sudo ./install-abot.sh 192.168.xx.xxx   192.168.xx.xxx

3.1.2   ABot Analytics Upgrade

If one wants to **upgrade ABot Analytics**, then do not choose (Y) in uninstall process for analytics

sudo ./upgrade-abot-analytics.sh **upgrade "Anlytics-IP" "Elasticsearch-IP"**

Example: - sudo ./ upgrade-abot-analytics.sh upgrade 192.168.xx.xxx 192.168.xx.xxx
It will update Analytics and Elasticsearch details with given arguments

3.1.3   ABot core and Analytics Un-Installation

If one wants to **Un-Install Abot core and Analytics**, then

Sudo ./ uninstall-abot.sh

Example: - sudo ./uninstall-abot.sh
It will uninstall both Abot core, Analytics and ELK stack

Note: if one wants to upgrade Analytics, don't un- install analytics with abot-uninstall script, when one runs un-install script, during analytics un-install will get prompt(y/n) for confirmation, for clean installation choose **(Y/y),** for up-gradation choose **(N/n).** ABot will un-install without any prompt.

Installation should begin on its own and once the debian package finishes installing, the instructions given in the next section, needs to be followed, to configure ABot.

3.2 ABot Analytics Database Configuration

3.2.2 How to Configure JVM options
To avoid JVM issues increase min and max JVM.
Go to "**/etc/elasticsearch/jvm.options**"
Look for **"-Xms"**
Note: By default it will have 1GB, Min and Max should be same. Login as root to change this file

3.2.4 MongoDB IP Address Configuration

For deploying **ABot Analytics** on a **separate VM instance** the customer needs to set the MongoDB IP Address of the ABot Core into analytics configuration. The steps for that are given below –

Go to "**/etc/rebaca-analytics-suite/config**"
Edit file - **abot-analytics.properties**
Replace **ABOT.MONGO.IP=192.168.*.*** with **ABOT.MONGO.IP=<ABOT CORE IP ADDRESS>**

3.2.5 Update Learning Schema

Once the whole setup is complete and when you have executed few test feature files ensure you also run the learning schema ingestion service.

First stop the analytic service by loggin into the box where Analytics is Installed using the command ;

sudo service abot-analytics stop

Next

Go to "**/etc/rebaca-analytics-suite/config**"

Edit file - **abot-analytics.properties**

And locate

#learning schema loading
ANALYTICS.INGEST.LEARN.SCMA=false

And set it to true like below
ANALYTICS.INGEST.LEARN.SCMA=true

Next start the analytics service using command

sudo service abot-analytics start

Next
Go to **"/etc/rebaca-analytics-suite/analytics**"

Execute command –   **python main_analytics.pyc learning_schema_5g**

Next tail the log of analytics using command -

tail –f /etc/rebaca-analytics-suite/log/Analytics.log

And look for **" rmq_service.py:431:INFO Successfully loaded Completion Data to es..."**

It takes around 30 mins to finish.

Next reset the configuration

sudo service abot-analytics stop

Go to **"/etc/rebaca-analytics-suite/config**"
Edit file - **abot-analytics.properties**

And locate and set to False

#learning schema loading
ANALYTICS.INGEST.LEARN.SCMA=false

sudo service abot-analytics start

3. Quick start guide

Once the package installation is completed successfully, one should navigate to ABot dashboard by giving the system IP Address in a web browser (recommended web browser are Google Chrome or Mozilla Firefox)

4.1 ABot Network Configuration

Configure ABot according to the needs of your testing. This involves identification of the SUT or DUT against which the testing will be done and setting the configuration accordingly. To configure ABot, click on the Config tab on the left side of the screen as show in Figure 1 below.
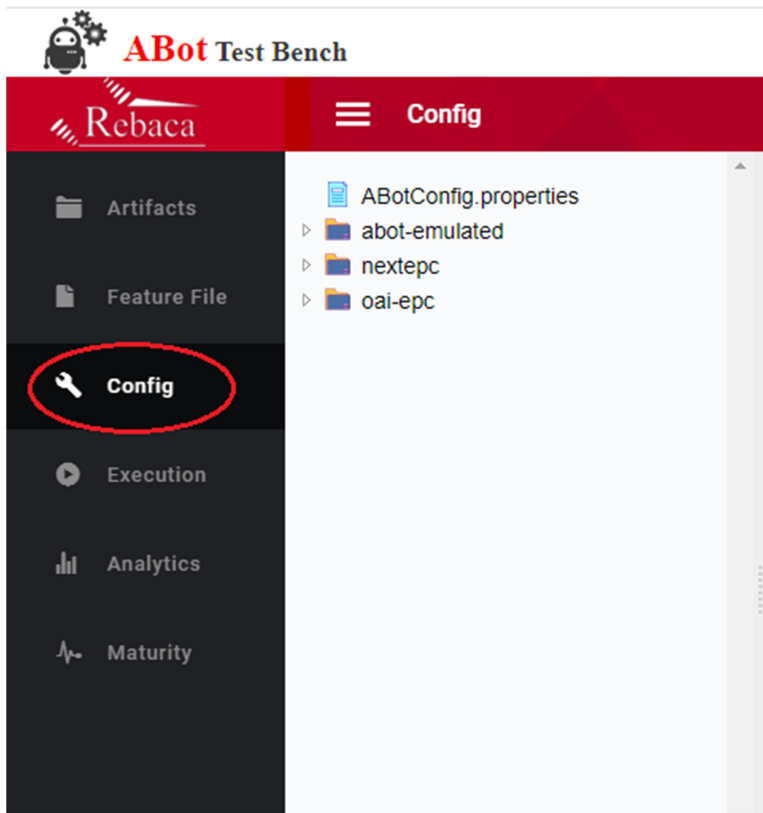
Click on ABotConfig.properties on the page as shown below. This will show the different configuration options that can be used to configure the system. The ABot configuration is organized in a hierarchical manner. Each of the configuration folders refer to a subsection of the configuration that can be referred to from the top level of the configuration (ABotConfiguration.properties). ABot comes pre-installed with open source EPC as examples of how to organize your configuration. Below is a description of the configuration for the open source oai-epc.
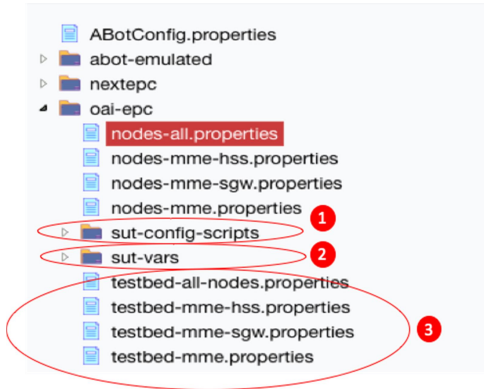
Figure 2

The configuration is divided into three different parts. The top level configuration within the oai-epc folder refers to the testbed configuration or the details of the nodes that are to be considered as SUT and the nodes that are to be considered as SIMULATORS. These testbeds can refer to separate node configurations that are there in the same folder and can be seen in Figure 2, given above.

Now refer to Figure 3 given below and click on the edit button to edit the configuration file. Once the testbed is defined, one needs to configure two other items in the hierarchy. These are the scripts that the user will use to control the lifecycle of the SUT i.e. how to restart or configure and restart the same. These configurations can be found inside the sut-scripts folder. The variables that are defined in this space can be used by the Feature File in order to control the lifecycle of the SUT nodes during the execution of a Test Case.

The third part of the configuration is the sut-vars folder, and this consists of defining the variables that are used by the Feature Files to replace IE/AVP values. Examples of such values are MCC/MNC and the like. The values of these variables are distributed across different Feature Files that represent different test cases in the system.
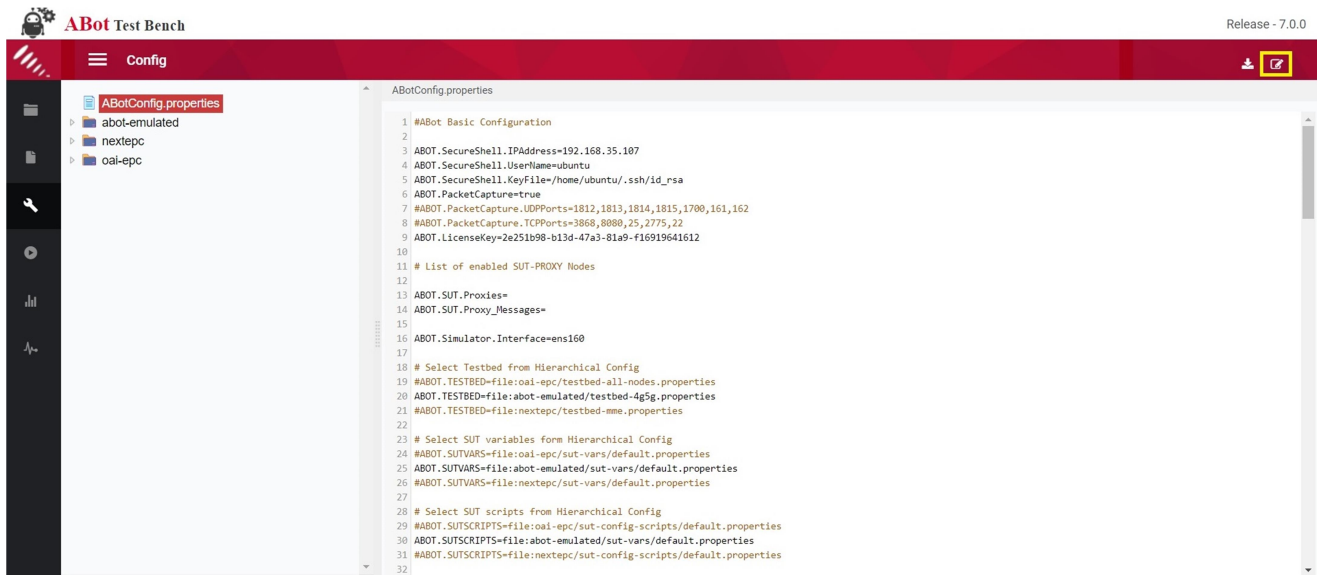

Figure 3

Also In order for ABot Core to communicate with ABot Analytics a configuration change needs to be done, on this same file ABotConfig.properties locate **ABOT.RMQ.ANALYTIC** and set to **true** and **set ANALYTICS.SecureShell.IP Address to IP Address of Analytics Box** as shown below in Figure 4
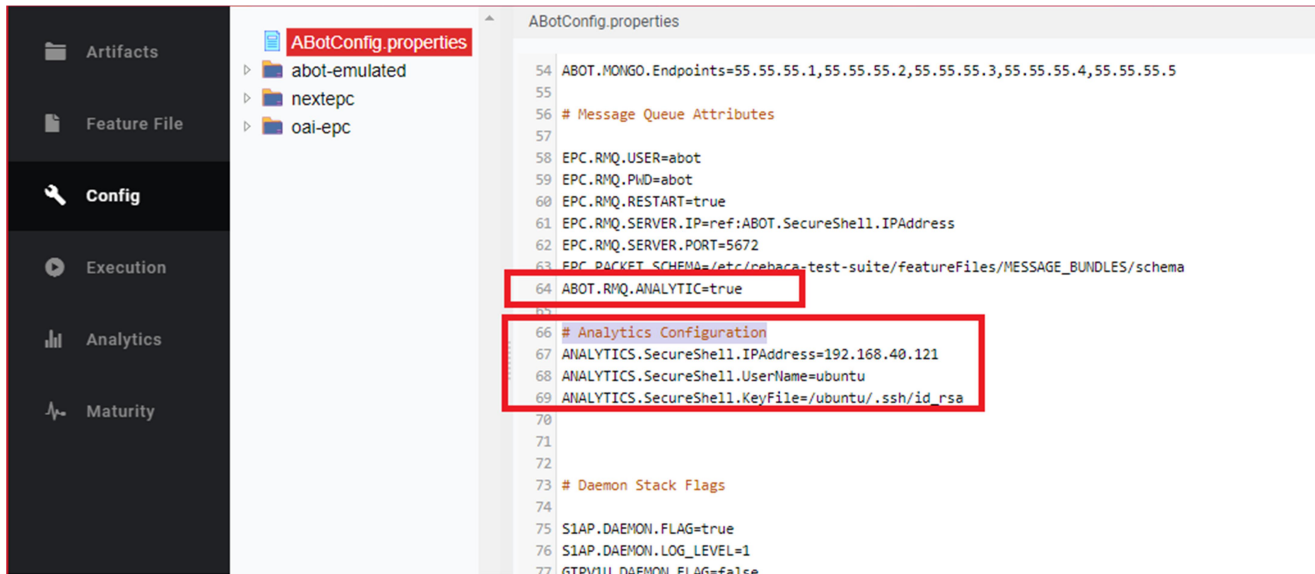

Figure 4

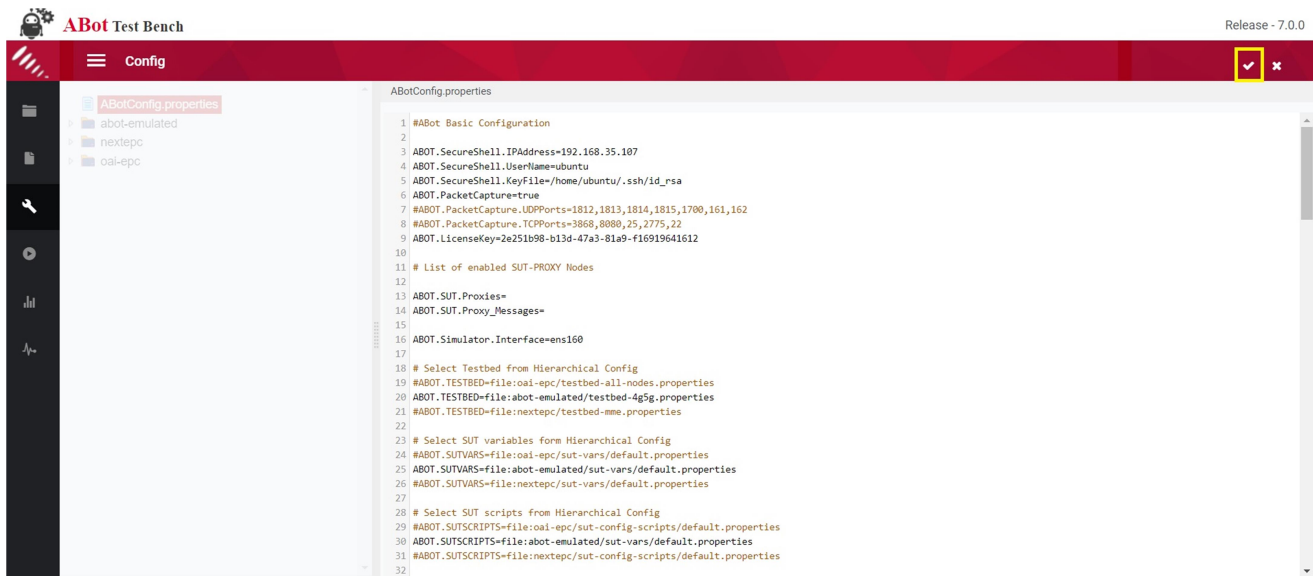Once modified, click on the Save button on top right corner of the screen as shown below in Figure 5.

Figure 5

4.2 ABot Feature Files and Test Execution

Once configured, ABot is ready to execute a feature file. Before executing, one needs to select the feature file to execute. ABot Feature files are organized in a directory structure that is accessible through the user interface. Click on the Feature Files button to go to the Feature File editor as shown below in Figure 6.
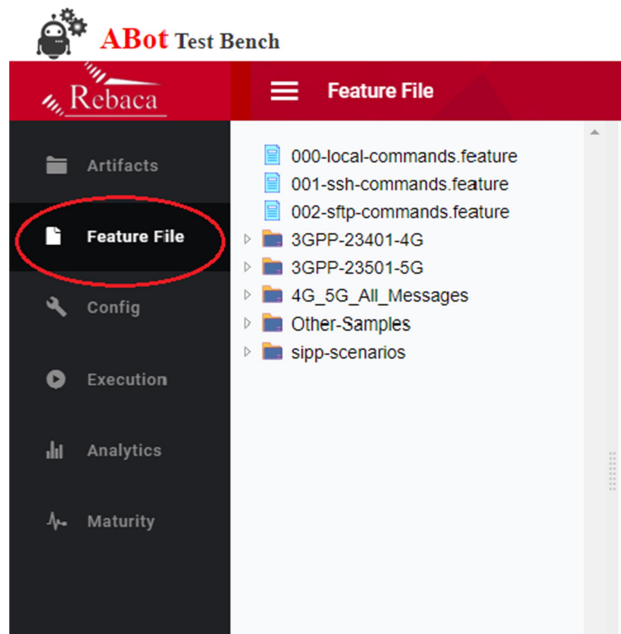

Figure 6

Select a feature file to view its contents. This can also be edited like ABotConfig.properties. Once edited and appropriate call flow parameters have been provided, ABot is ready for execution. Suitable tag can be selected to execute one or more than one set of feature files at a time.
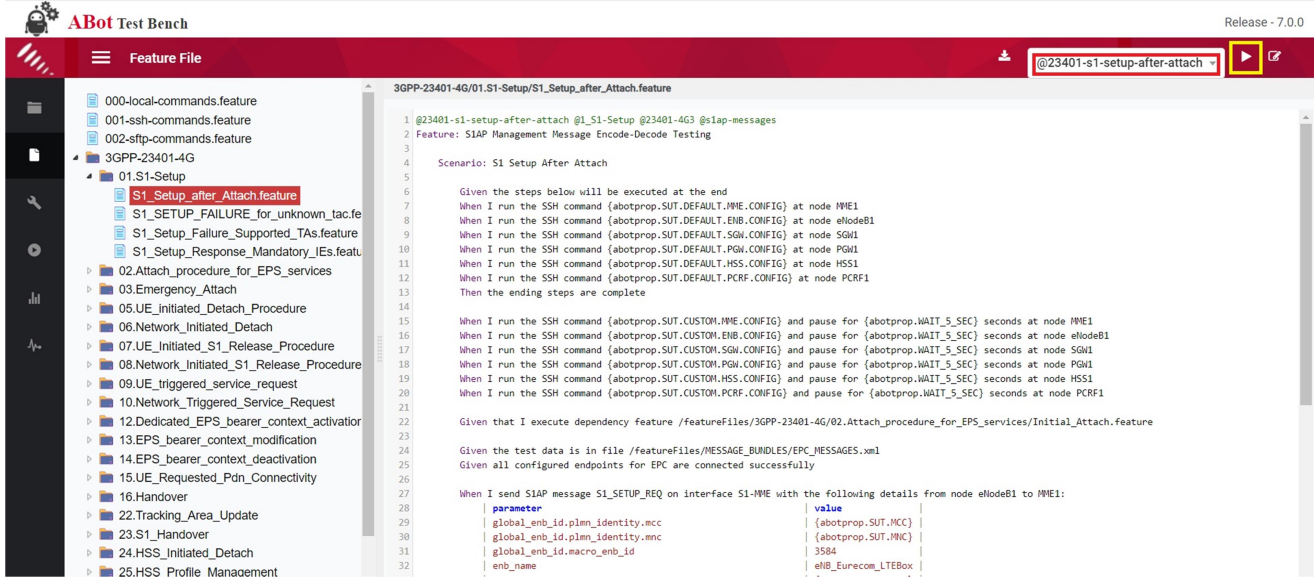
Figure 7

Executing a Feature File is as easy as clicking on the play button as shown above in Figure 7. Execution should now start and it will get redirected to the execution window. Figure 8 and 9 show the execution logs. A pill will show up stating the completion of the execution. The colour of the pill will also indicate the success or failure of the execution (green for success and red for failure). In Figure 8 shown below you can see the features executing where execution is not complete. In Figure 9 shown below you can see the feature execution is completed and the test verdict can be determined from the colour of the pill.
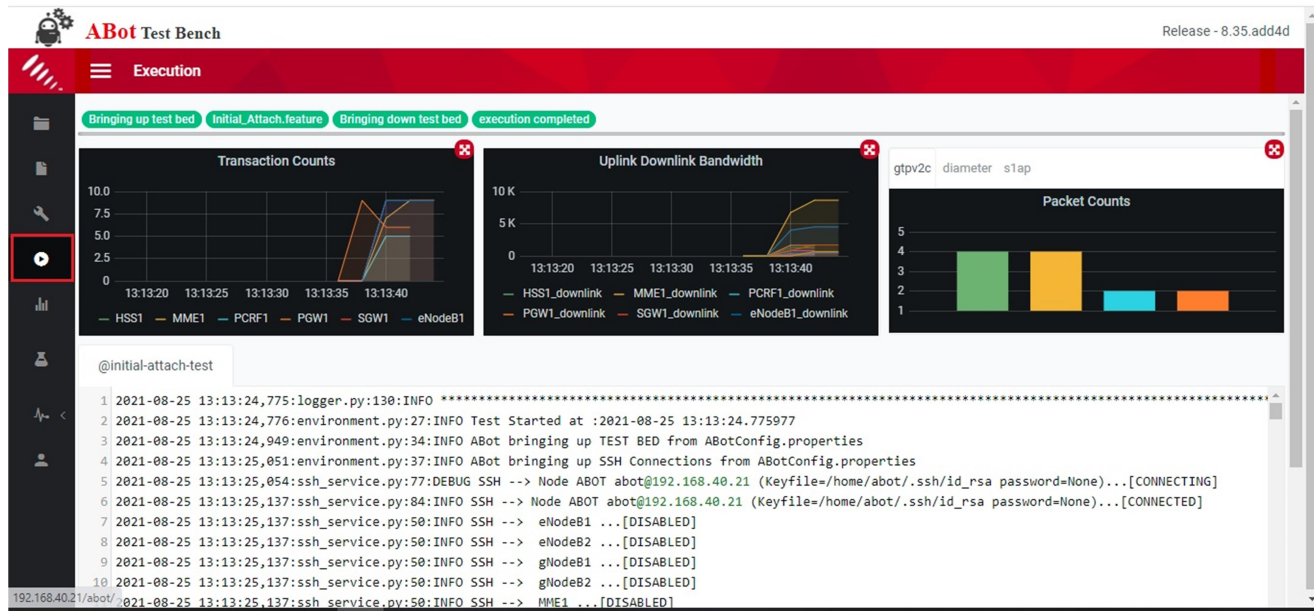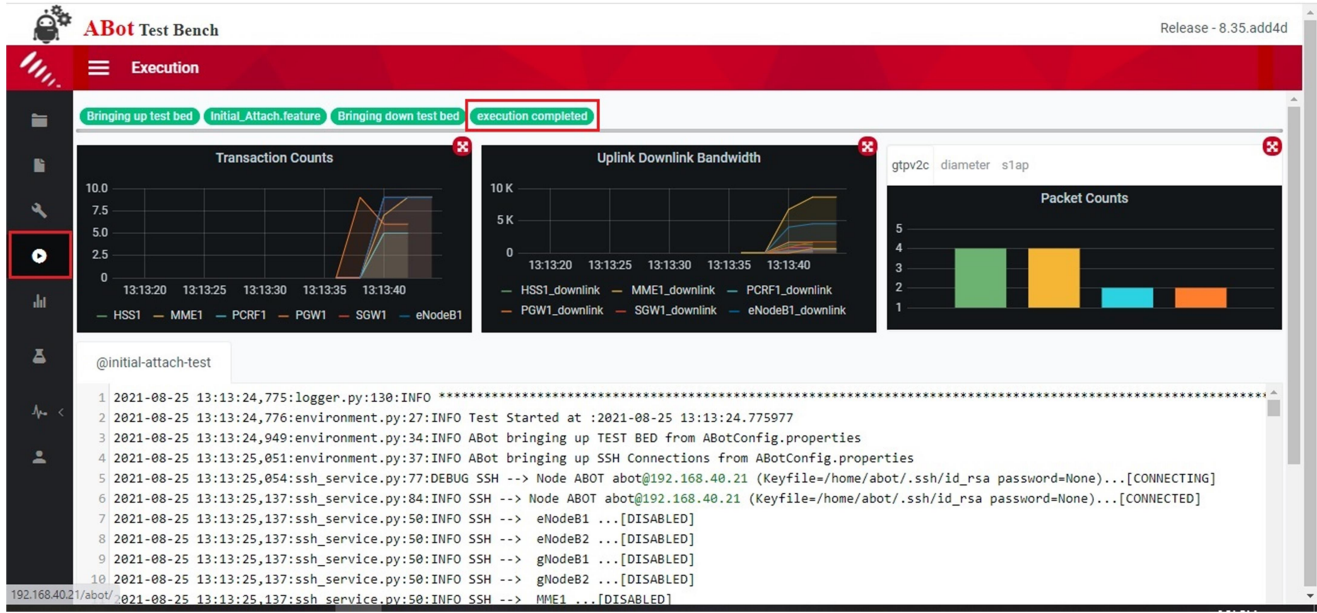

Figure 8

Figure 9

4.3 Test Visualization and Results

While the execution is in process, the load visualization will show up in the execution tab as shown above in Figure 8 and 9.

Once execution is complete, go to the Artefacts tab to see the result of the last executed test case as shown below in Figure 10. The Artefacts folder has sub folders classified according to the SUT or DUT. The top most artefact shows the results of the last executed feature file.
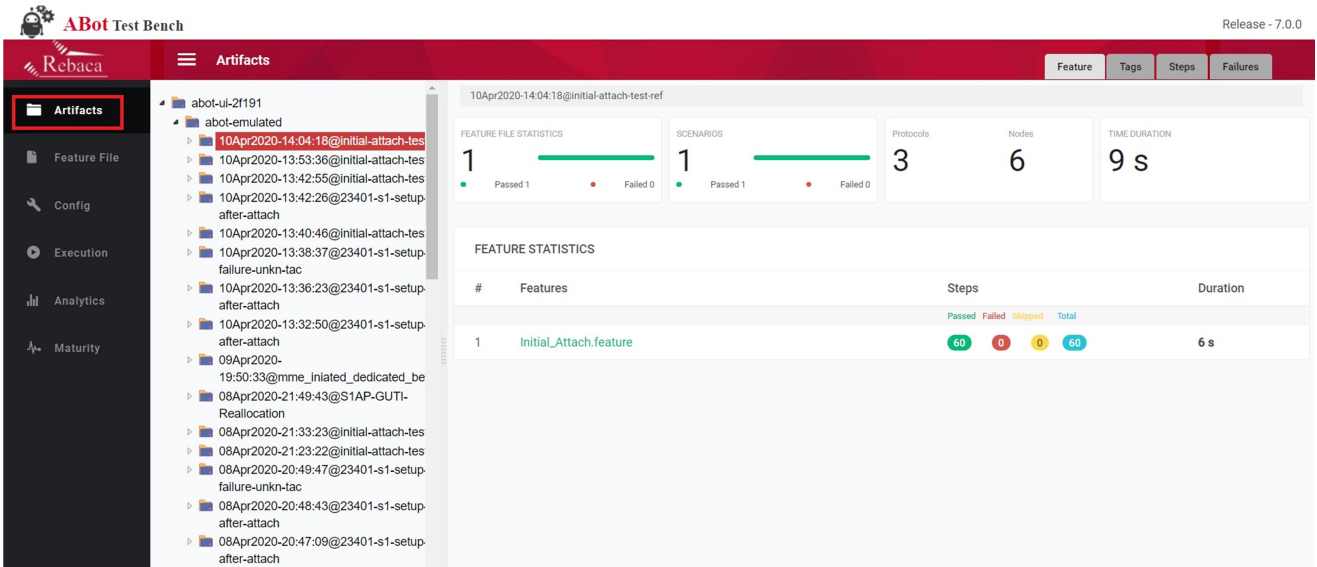

Figure 10

4.4 Analytics Tab

The Analytics tab has four broad sections. These can be filtered by selecting a date range and time range as shown in Figure 11. An overall view on the total number of feature files executed, procedures, scenarios, execution time and failure statistics can be obtained. In the second section statistical view of the procedures executed, scenarios of the feature files, the protocols on which the feature files were running, failure statistics, configuration of the system, interfaces of the procedures involved, the probes/tools and execution time are shown.
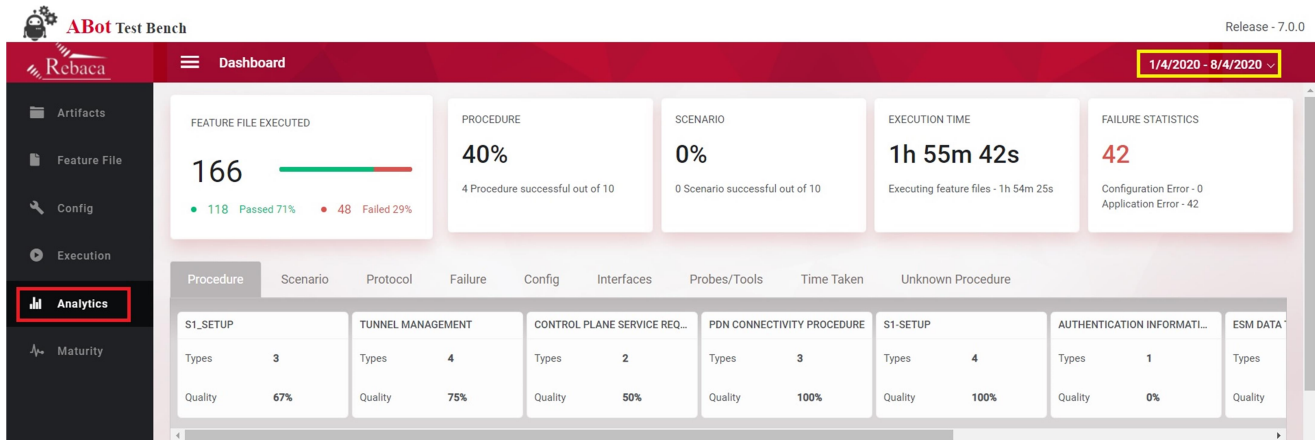

Figure 11

The third part consists of graphical view of the system KPIs such as CPU usage, Memory usage, Disk IO and Network, as shown in Figure 12.

The final part is the Story Board. It summarizes the data collected from all the execution statistics of the feature files ran within the selected time range, as referred in Figure 12.
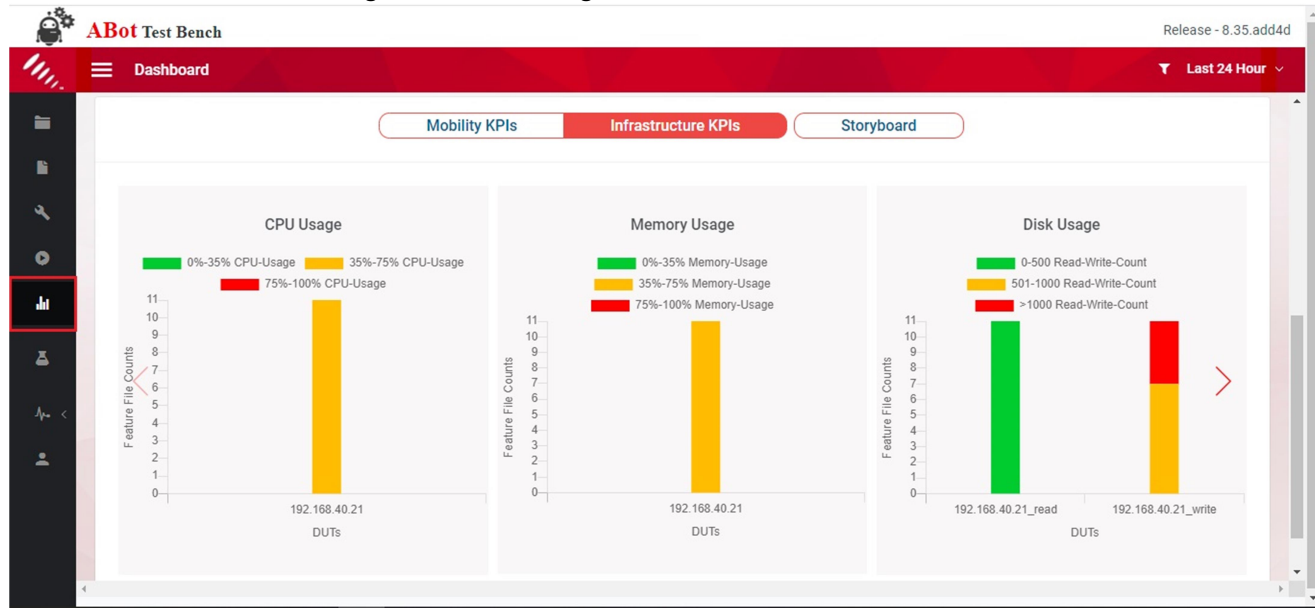

Figure 12

4.5 Maturity Tab

The Maturity tab gives a scope of comparison either by build ID or by the development of the build between two date ranges. It compares individual sections from various perspectives and lets the user drill down to the data of the survey reports.
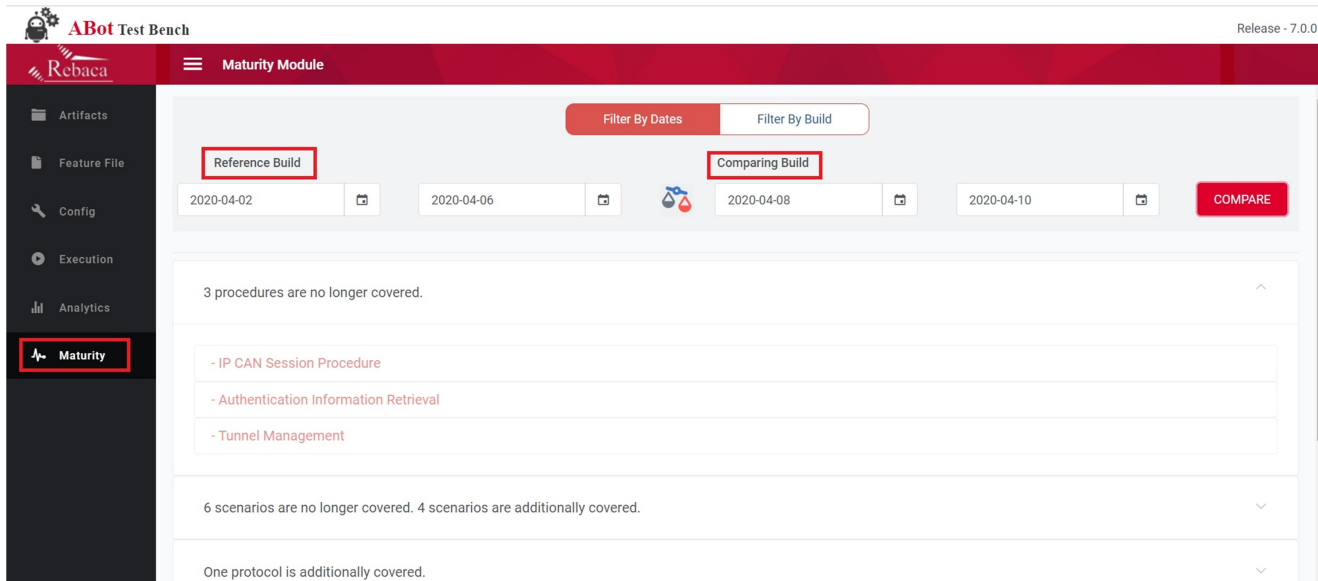

Figure 13

4. Troubleshooting

5.1 License Expiry and Fix

On expiry of license, the user is requested to contact Rebaca Team to get a new license file along with the mac address of the virtual machine or bare metal system that it's installed on. On receipt of the new license (abot.lic file), the user is to follow the steps below:

Copy the abot.lic file to the home folder of the ABot installation via scp/rsync

$> sudo cp abot.lic /etc/rebaca-test-suite/bin/

$> sudo service abot-license restart

5.2 Analytics & Maturity Dashboard or GUI Not working .

Restart the API service

$> sudo service abot-ui restart