



TIZEN™

Tizen 2.3.1

TCT User Guide

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1. Environment setup

1.1. Symbols and abbreviations

TC	- Test Case
TCT	- Tizen Compliance Test
SDB	- Smart Development Bridge
<name>	- Mandatory argument
[name]	- Optional argument
\$ (in shell command)	- Indicates the beginning of a command
\ (in shell command)	– In long commands, the backslash character ensures that newline character is ignored (if you join consecutive lines, please remove unnecessary backslashes)

1.2. Hardware Requirements

1. PC or Laptop that will work as host on which TCT-Manager will be installed
2. Tizen device that will work as target on which TCs will be executed
3. USB Cable for connecting device to host

1.3. Software Requirements

1. Install 32 or 64 bit Ubuntu OS with Linux 12.04 kernel or newer version on PC
2. Install JDK 1.6 or newer version on Linux PC.
3. Install Tizen 2.3.1 SDK on Linux PC for SDB connection.
4. These packages should be installed before installing TCT-Manager

```
$ sudo apt-get install rpm2cpio
```

```
$ sudo apt-get install tree
```

```
$ sudo apt-get install python-pip
```

```
$ sudo apt-get install python-support
```

```
$ sudo apt-get install python-requests
```

```
$ sudo apt-get install python-setuptools
```

- libudev1 or libudev-dev package should be installed for SDB.

First find the library 'libudev' installation location using command:

```
$ cd /lib/
```

```
$ find . -type f -name 'libudev*'
```

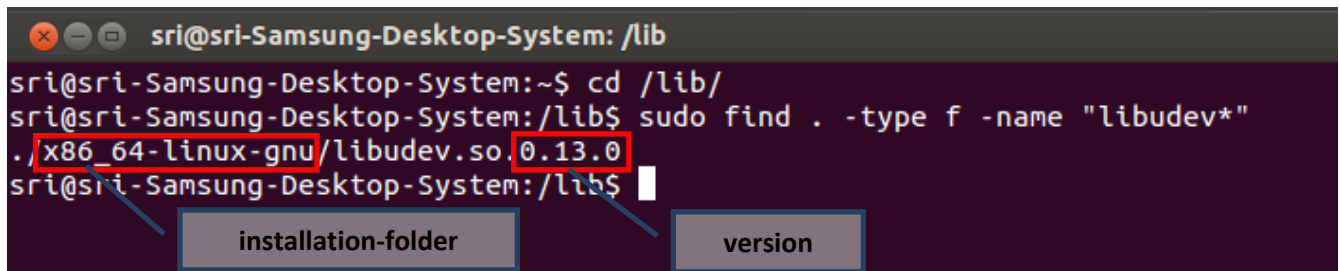


Figure 1: Getting location of libudev

If the package is not properly linked, use the following command:

```
$ sudo ln -s /lib/[installation-folder]/libudev.so.[version] /lib/[installation-folder]/libudev.so.0
```

e.g. \$ sudo ln -s /lib/i386-linux-gnu/libudev.so.0.13.0 /lib/i386-linux-gnu/libudev.so.0

※ There are 2 ways to execute TCT.

One way is “TCT Source – Build – Install – Execute”, the other way is “TCT binary – Execute”. You can get TCT binary then you don’t need TCT source and Build.

If you want the former, **go to step 2**(Getting TCT-source and TCT-manager),

If you want the latter, **go to step 3**(Getting TCT-binary and TCT-manager).

2. Getting TCT-source and TCT-manager

2.1. Download TCT Source

Download TCT source from git.

1. Make a directory to download the source.

```
$ mkdir <folder_name>
```

2. Clones a repository into a newly created directory.

```
$ cd <folder_name>
```

```
$ git clone git://git.tizen.org/test/testsuite/tct/native/tct
```

```
$ cd tct
```

```
$ git checkout tizen_2.3.1_mobile [ for mobile]
```

```
$ git checkout tizen_2.3.1_wearable [ for wearable]
```

2.2. Download TCT manager

Make a directory to put the TCT manager [native-tct-2.3.1.zip] from TCT source

```
<folder_name>/tct/src/tools/.
```

2.3. Tools Permission:

Execute the following command and give access permission to all contents inside tools.

1. Extract a 'native-tct-2.3.1.zip' file

```
~$ sudo unzip native-tct-2.3.1.zip
```

2. Change mode of the native-tct-2.3.1 directory

```
~$ sudo chmod 777 -R native-tct-2.3.1
```

3. Move to the native-tct-2.3.1/tools directory

```
~$ cd native-tct-2.3.1/tools
```

2.4. Folder structure:

You will find the folder structure like below:

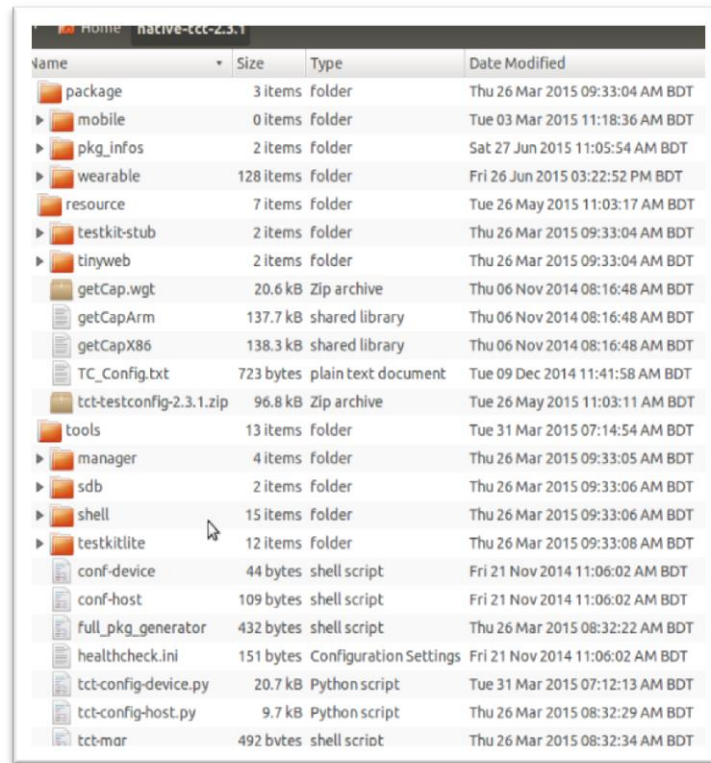


Figure 2: TCT-Manager folder structure

The following table describes the folders contents.

Folder	Description
package	All the packages to be tested in device
resource	Required resources for TCT manager
tools	Contains installation scripts for host and device

Table 1: TCT-Manager folders

2.5. For Host Configuration:

1. Clean the environment if an older version of TCT-Manager exists in host

`~/native-tct-2.3.1/tools/$ sudo python tct-config-host.py --purge`

2. Set environment on your host

`~/native-tct-2.3.1/tools/$ sudo python tct-config-host.py`

```

mahfuja@mahfuja:~$ cd TCT-2.3.1/native-tct-2.3.1/tools/
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-host.py --purge
[sudo] password for mahfuja:
current source base path =/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/tools/
current target base path =/opt/tct
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-host.py
current source base path =/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/tools/
current target base path =/opt/tct
copy shell dir start
copy shell dir finish
copy manager dir start
copy manager dir finish
source doc path is not a dir
copy package dir start
copy package dir finish
copy resource dir start
copy resource dir finish
target lite path is exists
target lite dir destroyed
copy lite dir finish
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$

```

Figure 3: Host Installation

2.6. For Device Configuration:

1. Connect the target device to host (PC) through USB.
2. Clean the environment if an older version of TCT-Manager configuration file exists in target device

~/native-tct-2.3.1/tools/\$ **sudo python tct-config-device.py --purge**

3. Set environment on your target

~/native-tct-2.3.1/tools /\$ **python tct-config-device.py**

```

mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-device.py --purge
set gdb root on. Please wait...
Get device cpu_arch type: armv7l
-----
[ Uninstall test resource on device. Please wait... ]
Uninstall testconfig. Please wait...
Uninstall behavior tool. Please wait...
Uninstall getCap...
tinyweb process has been killed
No process of testkit-stub activated
Clean the tct packages in device successfully.
-----
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-device.py
set gdb root on. Please wait...
Get device cpu_arch type: armv7l
check resource directory. Please wait...
The directory resource exists
-----
[ Clean old test resource on device. Please wait... ]
Uninstall testconfig. Please wait...
Uninstall getCap...
No process of tinyweb activated
No process of testkit-stub activated
Clean the tct packages in device successfully.
-----
[ Install test resource on device. Please wait... ]
Install testconfig. Please wait...
pushed      tct-testconfig-2.3.1.zip    100%          94KB
1 file(s) pushed. 0 file(s) skipped.
/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/resource/tct-testconfig-2.3.1.zip    917 KB/s (96885 bytes in 0.103s)
Install testconfig successfully.
Install testkit-stub. Please wait...
pushed      testkit-stub                100%        279KB
1 file(s) pushed. 0 file(s) skipped.
/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/resource/testkit-stub/arm/testkit-stub 2098 KB/s (285730 bytes in 0.132s)

```

Figure 4: Device Installation

4. Run below commands to change permission of TCT-Manager
`~/native-tct-2.3.1/tools/$ sudo chmod -R 777 /opt/tct/tizen_core_2.3.1`

`~/native-tct-2.3.1/tools/$ sudo chmod 777 /usr/bin/tct-mgr`

Note:- We recommend to use --purge option (like clean) for getting fresh execution environment
 If you face any problems, you should do as root.

2.7. Build and Install packages with Source

1. Update 'tct.conf' file with repository which you refer to

```
[general]
buildroot= ~/GBS-ROOT-TCT/

[profile.device]
repos = repo.device

[repo.device]
#mobile
url = http://download.tizen.org/snapshots/2.3-mobile/common/latest/repos/target/packages
#wearable
#url = http://download.tizen.org/snapshots/2.3-wearable/common/latest/repos/target/packages
```

Figure 5: tct.conf file

2. Run init script

\$ cd tct/scripts

\$./init.sh

Build packages. If you want to build all packages for **device – tcbuild**

\$ cd tct

\$ sudo ./tcbuild build

Or if you want to build for specific package,

\$ sudo ./tcbuild build <tc_type> <package-name> [ex: \$ sudo ./tcbuild build itc application]

```
swc2@swc2-Laptop:~/Desktop/test$ cd tct/scripts/
swc2@swc2-Laptop:~/Desktop/test/tct/scripts$ ./init.sh
swc2@swc2-Laptop:~/Desktop/test/tct/scripts$ cd ..
swc2@swc2-Laptop:~/Desktop/test/tct$ sudo ./tcbuild build itc application
*****START BUILDING itc:native-application-itc*****
info: generate repositories ...
info: build conf has been downloaded at:
    /var/tmp/root-gbs/device.conf
info: start building packages from: /home/swc2/Desktop/test/tct (git)
2015-01-26 17:52 +0900
gbs 0.23
info: prepare sources...
```

Figure 6. Build a package

3. After build success,

Install packages.If you want to install all packages for **device – tcbuild**

\$ cd tct

\$ sudo ./tcbuild install

Or if you want to install for specific package,

\$ sudo ./tcbuild install <tc_type> <package-name> [ex: \$ sudo ./tcbuild install itc player]

```
swc2@swc2-Laptop: ~/Desktop/Tizen_2.3.1/tizen_2.3.1_wearable/tct
swc2@swc2-Laptop:~/Desktop/Tizen_2.3.1/tizen_2.3.1_wearable/tct$ sudo ./tcbuild install itc player
*****START Installing itc:player*****
-- Preparing suite .zip file...
---- Creating /tmp/opt/tct-player-native-itc directory
---- Copying rpm package to /tmp/opt/tct-player-native-itc package
---- Generating /tmp/opt/tct-player-native-itc/inst.sh file
---- Generating /tmp/opt/tct-player-native-itc
---- Preparing /tmp/tct/packages/tct-player-native-itc-2.3.1.zip file
-- Suite deployment...
---- Package copying to /opt/tct/tizen_core_2.3.1/packages/tct-player-native-itc-2.3.1.zip
---- Updating the file /opt/tct/tizen_core_2.3.1/packages/pkg_infos/wearable_pkg_info.xml
Task finished successfully
swc2@swc2-Laptop:~/Desktop/Tizen_2.3.1/tizen_2.3.1_wearable/tct$
```

Figure 7. Install a package

3. Getting TCT-binary and TCT-manager

3.1. Download TCT binary

Download TCT binary from site

: http://download.tizen.org/tct/2.3.1/2.3.1_r1/NATIVE_TCT/native-tct_2.3.1_r1.zip

```
~$ unzip native-tct_2.3.1_r1.zip
```

```
~$ cd native-tct_2.3.1_r1/TCT/native-tct-2.3.1
```

Native TCT packages are already built and inside in native-tct-2.3.1/package/mobile or wearable folder. You can find zip files in there.

3.2. Tools Permission:

Execute the following command and give access permission to all contents inside tools.

1. Change mode of the native-tct-2.3.1 directory

```
~$ sudo chmod 777 -R native-tct-2.3.1
```

2. Move to the native-tct-2.3.1/tools directory

```
~$ cd native-tct-2.3.1/tools
```

3.3. For Host Configuration:

1. Clean the environment if an older version of TCT-Manager exists in host

```
~/native-tct-2.3.1/tools/$ sudo python tct-config-host.py --purge
```

2. Set environment on your host

```
~ /native-tct-2.3.1/tools/$ sudo python tct-config-host.py
```

```

mahfuja@mahfuja:~$ cd TCT-2.3.1/native-tct-2.3.1/tools/
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-host.py --purge
[sudo] password for mahfuja:
current source base path =/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/tools/
current target base path =/opt/tct
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-host.py
current source base path =/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/tools/
current target base path =/opt/tct
copy shell dir start
copy shell dir finish
copy manager dir start
copy manager dir finish
source doc path is not a dir
copy package dir start
copy package dir finish
copy resource dir start
copy resource dir finish
target lite path is exists
target lite dir destroyed
copy lite dir finish
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$

```

Figure 8: Host Installation

3.4. For Device Configuration:

1. Connect the target device to host (PC) through USB.
2. Clean the environment if an older version of TCT-Manager configuration file exists in target device

```
~/native-tct-2.3.1/tools/$ sudo python tct-config-device.py --purge
```

3. Set environment on your target

```
~/native-tct-2.3.1/tools /$ python tct-config-device.py
```

```

mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-device.py --purge
set sdb root on. Please wait...
Get device cpu_arch type: armv7l
-----
[ Uninstall test resource on device. Please wait... ]
Uninstall testconfig. Please wait...
Uninstall behavior tool. Please wait...
Uninstall getCap...
tinyweb process has been killed
No process of testkit-stub activated
Clean the tct packages in device successfully.
-----
mahfuja@mahfuja:~/TCT-2.3.1/native-tct-2.3.1/tools$ sudo python tct-config-device.py
set sdb root on. Please wait...
Get device cpu_arch type: armv7l
check resource directory. Please wait...
The directory resource exists
-----
[ Clean old test resource on device. Please wait... ]
Uninstall testconfig. Please wait...
Uninstall getCap...
No process of tinyweb activated
No process of testkit-stub activated
Clean the tct packages in device successfully.
-----
[ Install test resource on device. Please wait... ]
Install testconfig. Please wait...
pushed      tct-testconfig-2.3.1.zip    100%          94KB
1 file(s) pushed. 0 file(s) skipped.
/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/resource/tct-testconfig-2.3.1.zip  917 KB/s (96885 bytes in 0.103s)
Install testconfig successfully.
Install testkit-stub. Please wait...
pushed      testkit-stub              100%        279KB
1 file(s) pushed. 0 file(s) skipped.
/home/mahfuja/TCT-2.3.1/native-tct-2.3.1/resource/testkit-stub/arm/testkit-stub  2098 KB/s (285730 bytes in 0.132s)

```

Figure 9: Device Installation

- Run below commands to change permission of TCT-Manager

```
~/native-tct-2.3.1/tools/$ sudo chmod -R 777 /opt/tct/tizen_core_2.3.1
```

```
~/native-tct-2.3.1/tools/$ sudo chmod 777 /usr/bin/tct-mgr
```

Note:- We recommend to use --purge option (like clean) for getting fresh execution environment

If you face any problems, you should do as root.

4. Execute Test Suites

4.1. Run TCT-Manager:

Execute the following command:

\$ tct-mgr

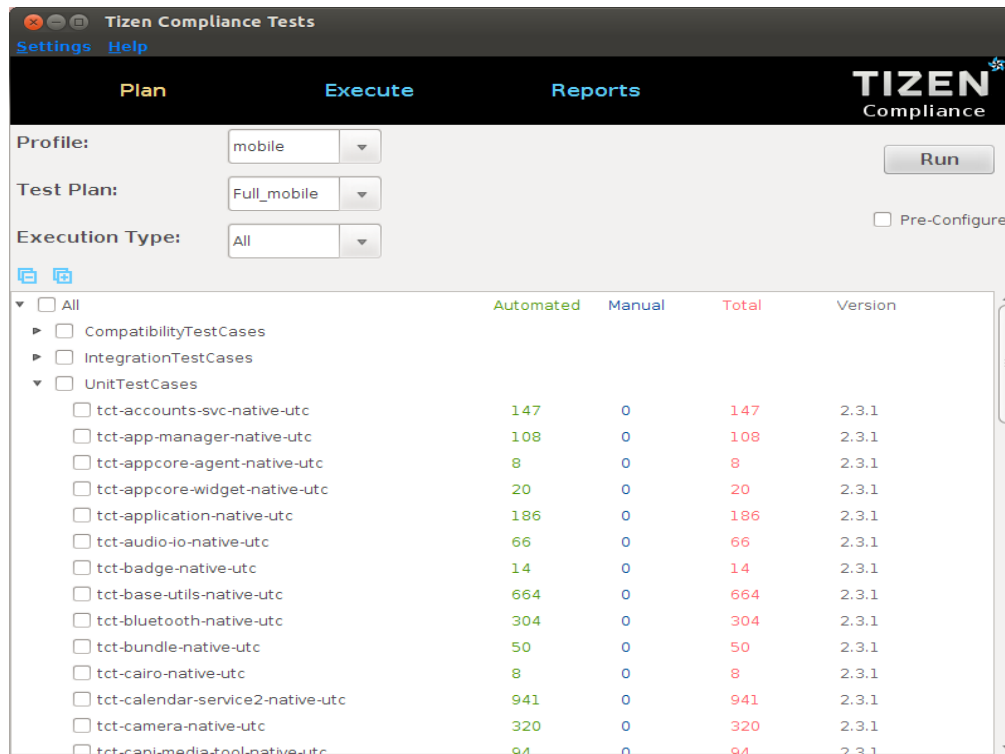


Figure 10: TCT-Manager UI

4.2. Choose Profile:

Choose your profile from profile combo box.

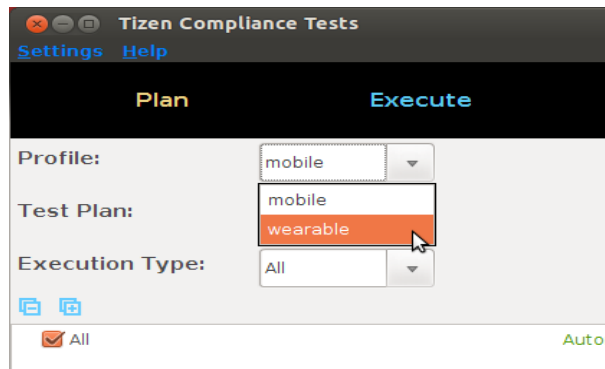


Figure 11: Select Profile

4.3. Choose Target:

Choose your target from **Settings > Choose Device**:

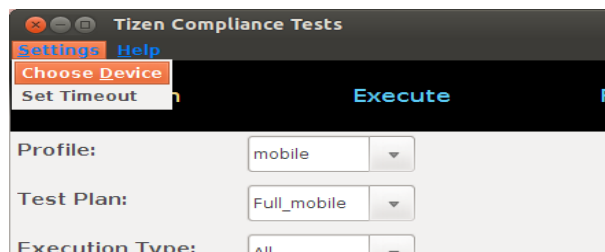


Figure 12: Choose device in TCT-Manager UI

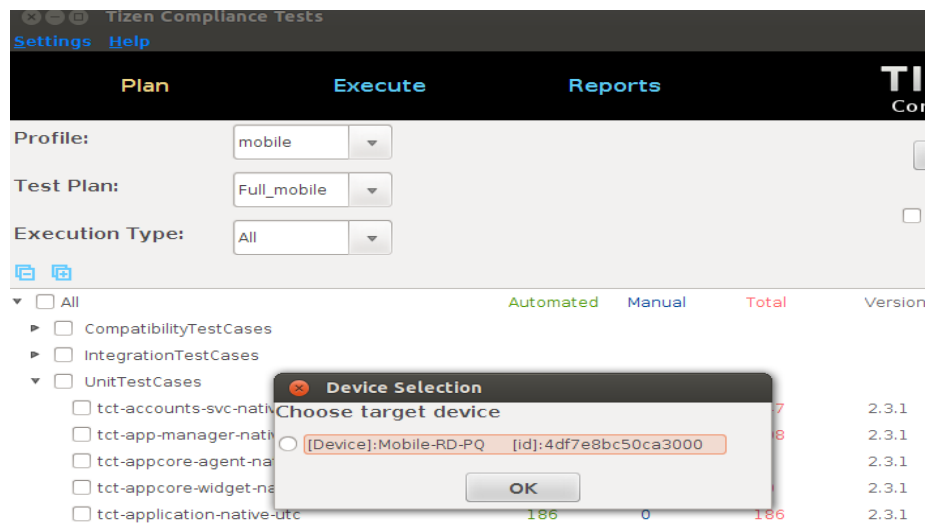


Figure 13: Device selection in TCT-Manager

4.4. Execution by Creating a New Plan:

1. Select suites by checking boxes from trees.
2. Choose profile 'mobile'.
3. Execution type to 'All'
4. Click button 'Run'. Leave Pre-Configure box unchecked at first time.
 ※ If you check the box from second time, pre-configurations will be set as default.
5. press 'Run' button
6. Create a new test plan.

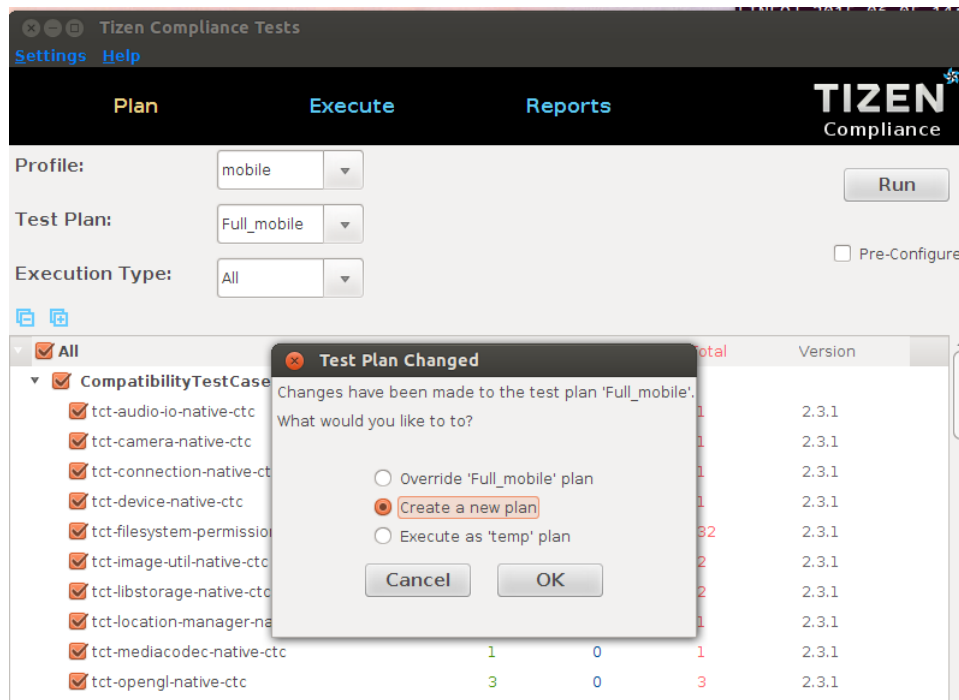


Figure 14: Creating a new plan in TCT-Manager

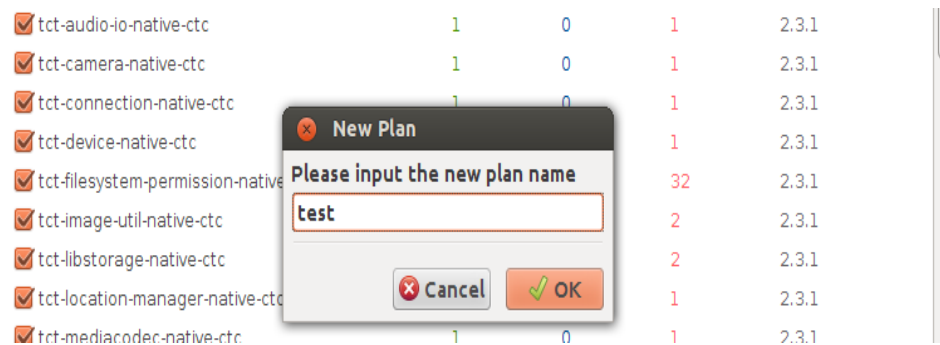


Figure 15: Input plan name in TCT-Manager

4.5. Performs a Health check:

As shown in Figure 15, health check routines will be invoked to check the status of the target before executing the selected test suites. After all health check routines pass, TCT-Manager runs selected test suites.

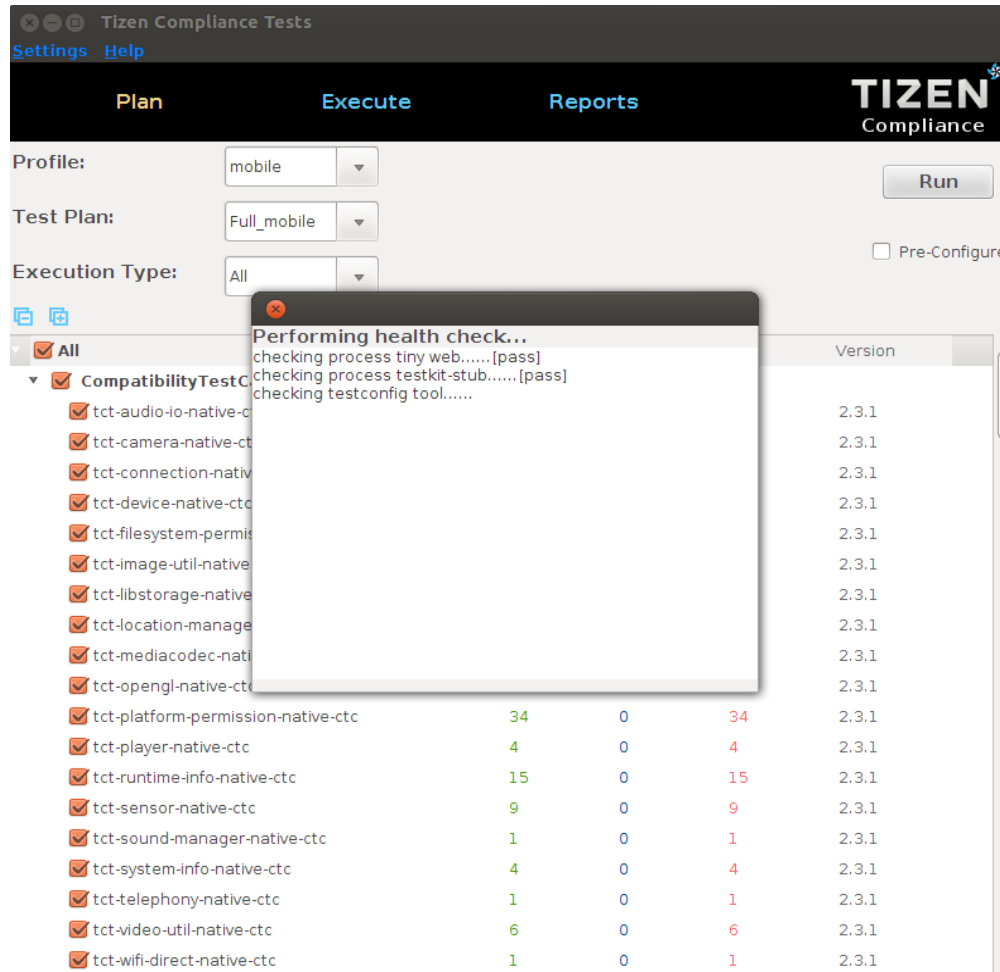


Figure 16: Health check monitoring after execution Run in TCT-Manager

4.6. Edit Pre-Configuration File:

If you execute any package with needs pre-condition, a dialog is displayed to show the configurable parameters for testing as shown in Figure 16. Change the values of parameters as per the test environment and press 'Continue'. For e.g. value of EMAIL_RECIPIENT should be set as the email address of recipient to which email should be sent. Before running TCT, leave Pre-Configure box unchecked.

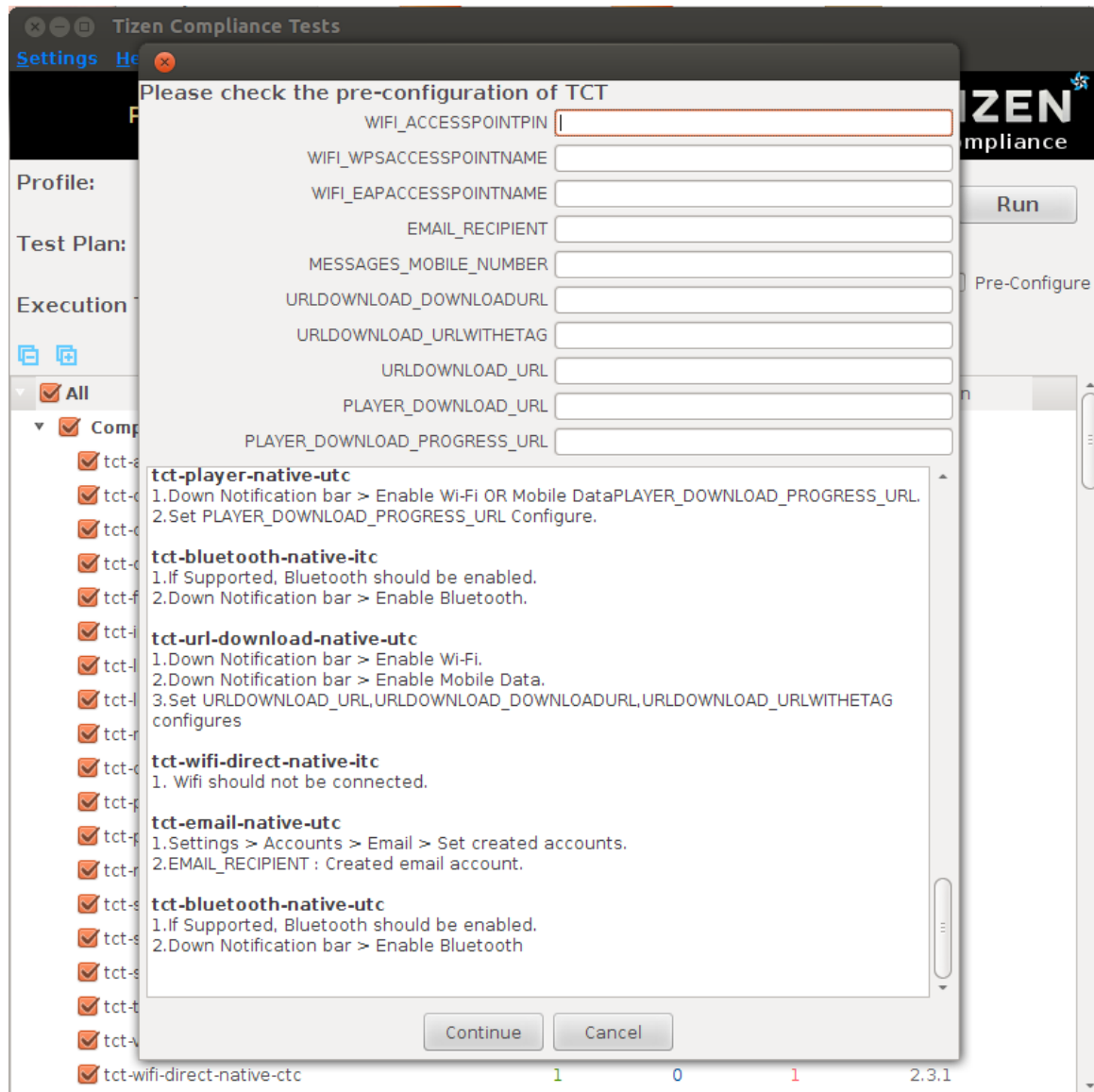


Figure 17: Edit Pre-Configuration file before execution.

Below is the pre-requisites list of individual modules suggesting the necessary changes in configuration values:-

UTC		
Packages	Pre-requisites	DEVICE [How to find Information]
bluetooth	If Supported, Bluetooth should be enabled.	*Down Notification bar > Enable Bluetooth
camera	If Supported, Camera should be working.	
contacts-service2	If Supported, SIM Card should be inserted.	*Insert SIM card. *SDN information should be written in SIM Card. (Only allow to write this information to tele-company)

email	Must be set an email account.	*Settings > Accounts > Email > Set created accounts [Set the Pre-Configure dialog of TCT-Manager UI] *EMAIL_RECIPIENT : Created email account
location-manager	If Supported, GPS should be enabled.	*Down Notification bar > Enable GPS
messages	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM Card [Set the Pre-Configure dialog of TCT-Manager UI] *MESSAGES_MOBILE_NUMBER ex) +821012345678
nfc	If Supported, NFC should be ON.	*Down Notification bar > Enable NFC
player	Must be connected to internet using Wi-Fi or data network.	*Down Notification bar > Enable Wi-Fi OR Down Notification bar > Enable Mobile Data [Set the Pre-Configure dialog of TCT-Manager UI] *PLAYER_DOWNLOAD_URL ex) http://www.archive.org/download/WaltzingMathilda320X240_512kb.mp4 *PLAYER_DOWNLOAD_PROGRESS_URL ex) http://content.bitsontherun.com/videos/ntPYsD4L-1ahmry41.mp4
telephony	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM card.
webkit2	Must be connected to internet using Wi-Fi or data network.	*Down Notification bar > Enable Wi-Fi OR Down Notification bar > Enable Mobile Data
wifi	If Supported, Wi-Fi should be enabled.	*Down Notification bar > Enable Wi-Fi

ITC		
Packages	Pre-requisites	DEVICE [How to find Information]
bluetooth	If Supported, Bluetooth should be enabled.	*Down Notification bar > Enable Bluetooth
camera	If Supported, Camera should be available.	
connection	If Supported, Enable Wi-Fi If Supported, Enable Mobile Data Network	*Down Notification bar > Enable Wi-Fi. *Down Notification bar > Enable Mobile Data.
contacts-service2	1. If Supported, SIM Card should be inserted. 2. Create a contact in SIM	*Insert SIM card. *SDN information should be written in SIM Card. (Only allow to write this information to tele-company) * Contacts > Select Sim > Save Contact Information
email	Must be set an email account.	*Settings > Accounts > Email > Set created accounts [Set the Pre-Configure dialog of TCT-Manager UI] *EMAIL_RECIPIENT : Created email account
key-manager	Must be set the time as correct	*Once connect mobile data or wi-fi, it comes correct when 'auto update' set. Or Settings > Data and Time : Set by manual.
location-manager	If Supported, GPS should be enabled.	*Down Notification bar > Enable GPS
messages	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM Card [Set the Pre-Configure dialog of TCT-Manager UI] *MESSAGES_MOBILE_NUMBER ex) +821012345678

player	Must be connected to internet using Wi-Fi or data network.	*Down Notification bar > Enable Wi-Fi OR Down Notification bar > Enable Mobile Data [Set the Pre-Configure dialog of TCT-Manager UI] *PLAYER_DOWNLOAD_URL ex) http://www.archive.org/download/WaltzingMathilda-avi/WaltzingMathilda320X240_512kb.mp4 *PLAYER_DOWNLOAD_PROGRESS_URL ex) http://content.bitsontherun.com/videos/ntPYsD4L-1ahmry41.mp4
telephony	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM card. ※ SPN information should be written in SIM Card. (Only allow to write this information to tele-company)
url-download	Must be connected to Internet using Wi-Fi or data network.	*Down Notification bar > Enable Wi-Fi OR Down Notification bar > Enable Mobile Data [Set the Pre-Configure dialog of TCT-Manager UI] *URLDOWNLOAD_URL ex) https://download.tizen.org/misc/Tizen-Brand/01-Primary-Assets/Logo/On-Light/01-RGB/Tizen-Logo-On-Light-RGB.png *URLDOWNLOAD_DOWNLOADURL ex) http://mirrors.ustc.edu.cn/videolan-ftp/vlc/2.1.5/win32/vlc-2.1.5-win32.zip *URLDOWNLOAD_URLWITHETAG ex) http://www.w3.org/Protocols/rfc2616/rfc2616-sec14.html
webkit2	Must be connected to internet using Wi-Fi or data network.	*Down Notification bar > Enable Wi-Fi OR Down Notification bar > Enable Mobile Data
wifi	If Supported, Wi-Fi should be enabled.	*Down Notification bar > Enable Wi-Fi [Set the Pre-Configure dialog of TCT-Manager UI] *Wi-Fi_WPSACCESSPOINTNAME (Wi-Fi router's name) *Wi-Fi_ACCESSPOINTPIN (Wi-Fi router's password) *Wi-Fi_EAPACCESSPOINTNAME (Should be enterprise access point mode and public. This Wi-Fi router should be different from above WPS enabled public Wi-Fi router.)>

CTC		
Packages	Pre-requisites	DEVICE [How to find Information]
platform-permission	If Supported, Bluetooth should be enabled. If Supported, SIM card should be inserted. If Supported, SD card should be inserted.	*Down Notification bar > Enable Bluetooth *Insert SIM card. *Insert SD card.
telephony	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM card.

4.7. Execution Progress:

When executing the test, this screen will be shown as in Figure 17.

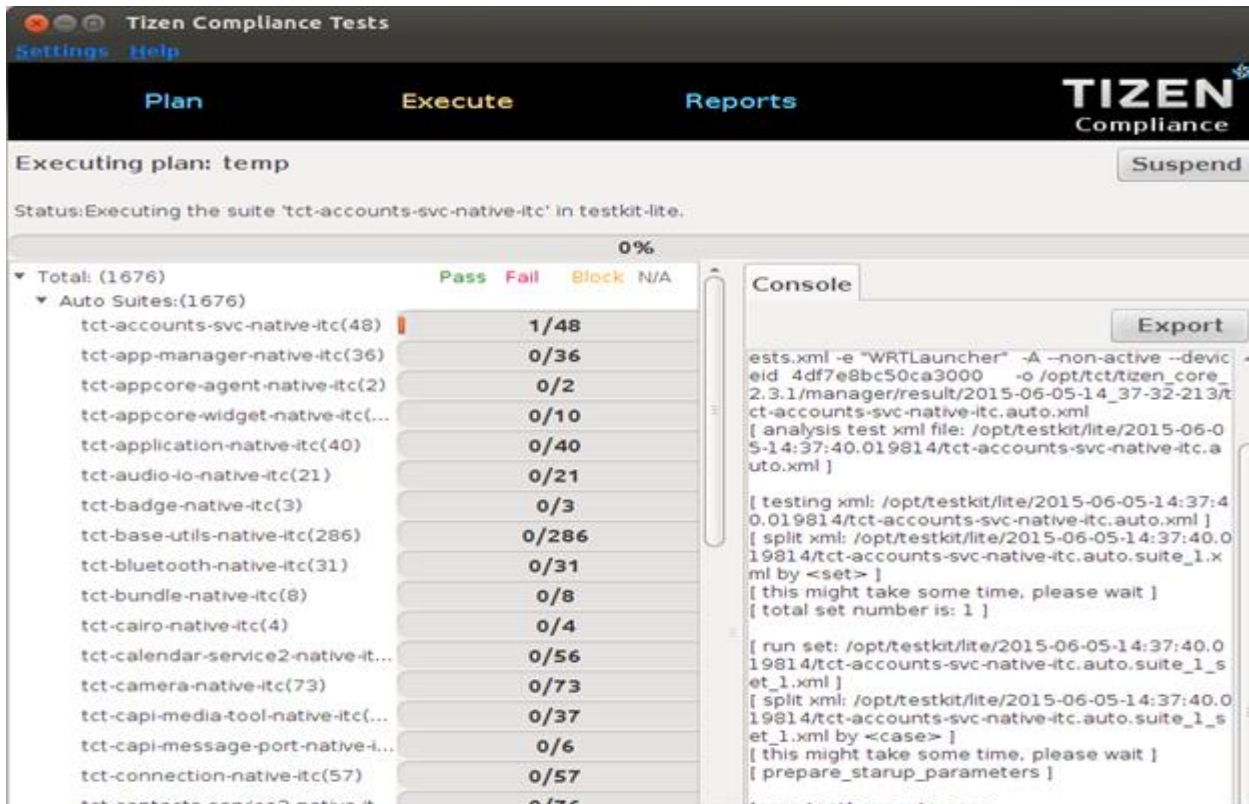


Figure 18: Execution progress while Running Test Suite in TCT-Manager

4.8. Execution Report:

After executing all the test suites, Reports tab will show a results list as in Figure 18.

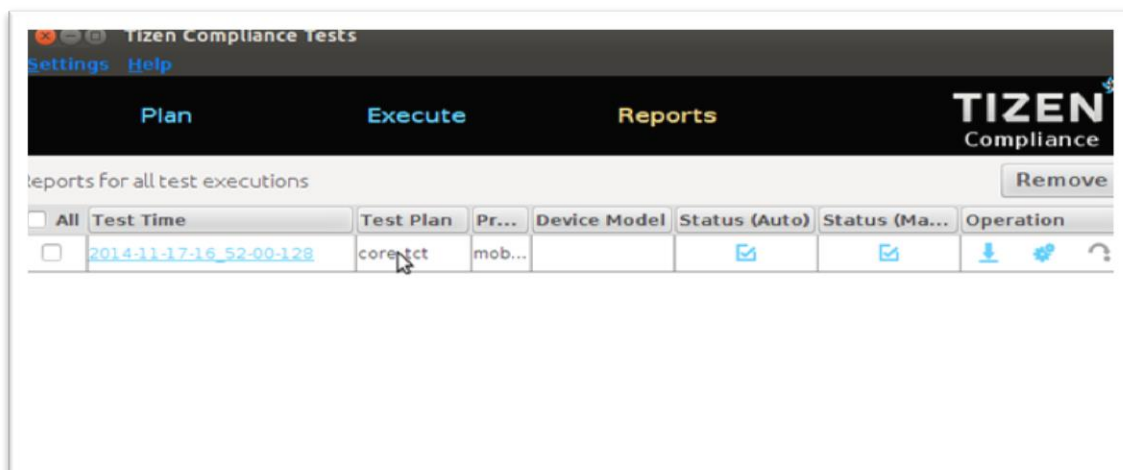


Figure 19: Execution report after completing execution in TCT-Manager

4.9. Download Result:

You can download the result file by clicking red marked button showed in Figure 19.

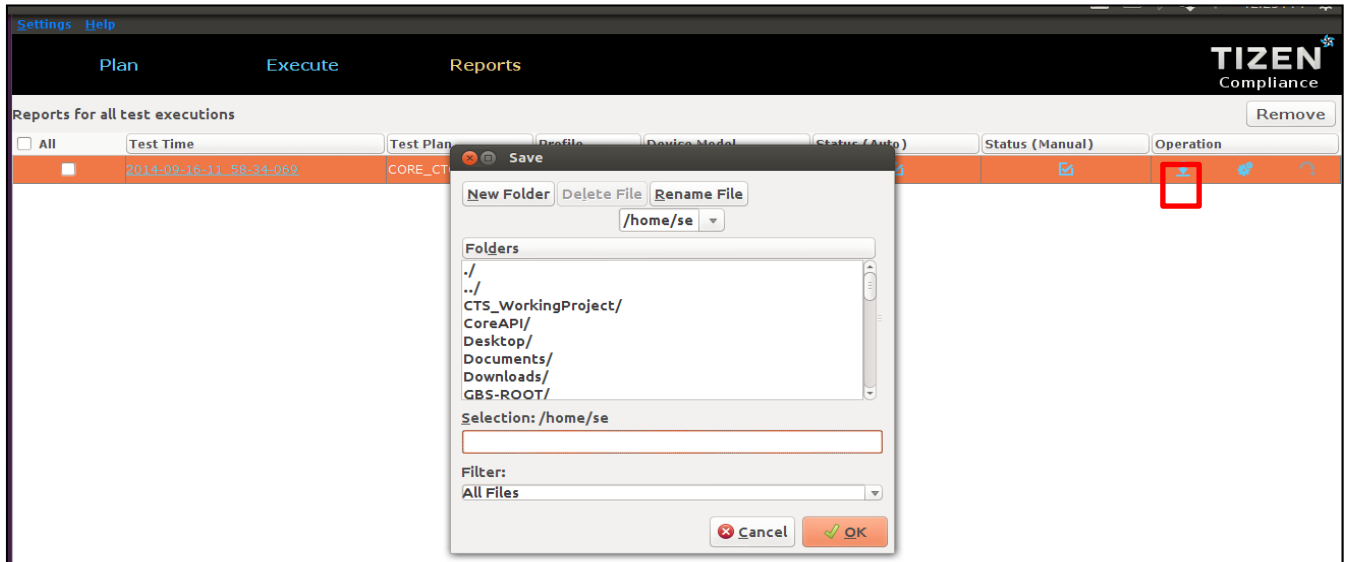


Figure 20: Download the Execution report in TCT-Manager

4.10. View Result Summary:

Click the red marked link to view result summary in browser as shown in Figure 20.

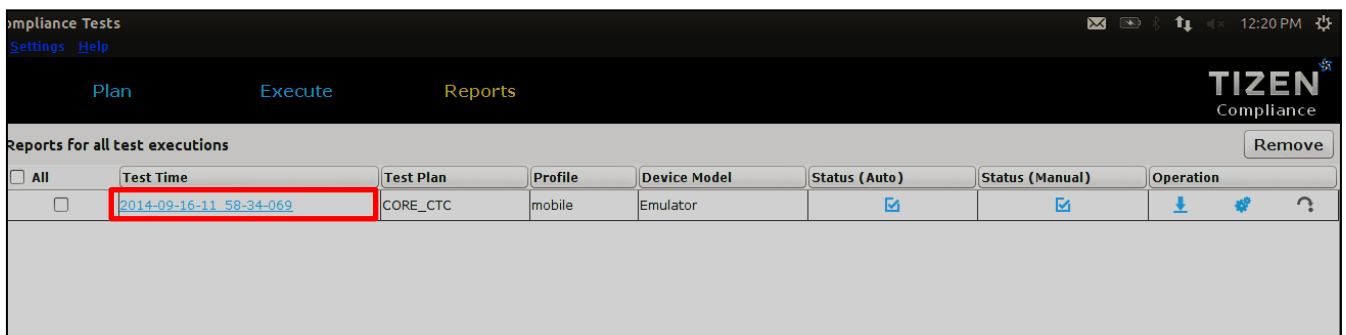


Figure 21: View the Execution report in TCT-Manager

TCT-manager provides detailed information about test results. TCT Report (Figure-21) shows

how many test suites were executed, how many test cases were checked, how many test cases passed or failed, etc.

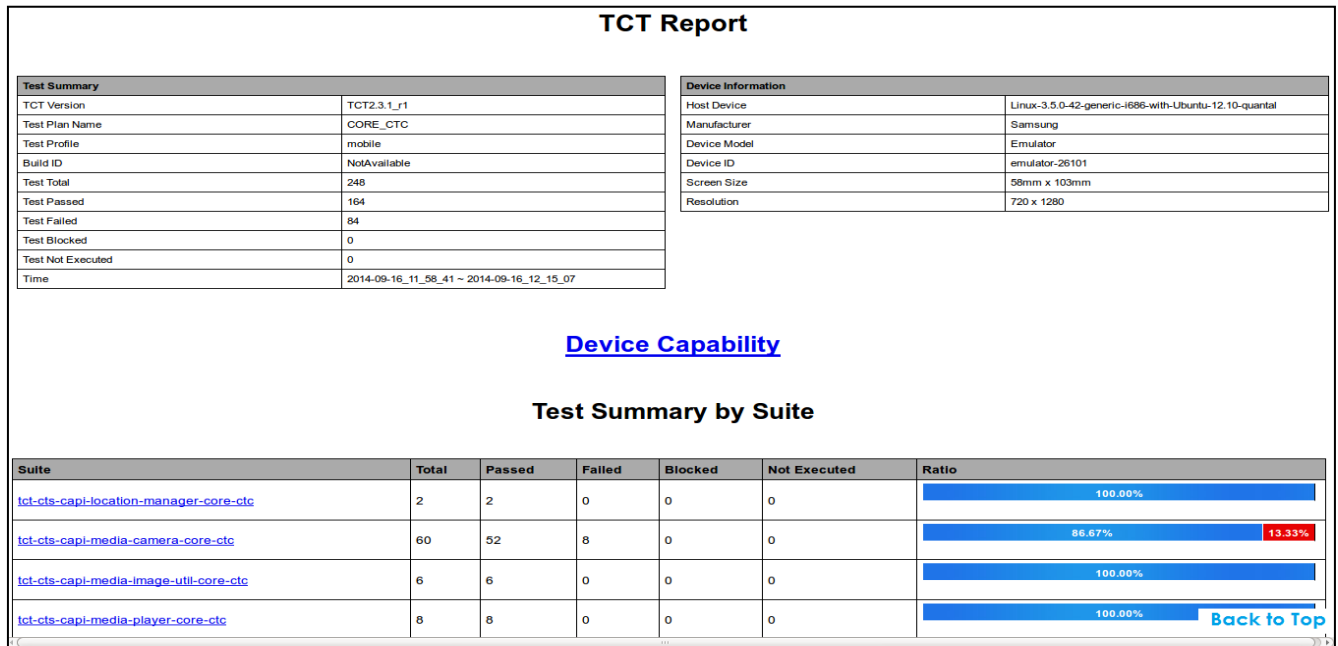


Figure 22: View the Execution report summary in TCT-Manager

4.11. View Result Details:

By clicking the name of each test suite, you can check the name, purpose, result and error log of each test case (Figure 22).

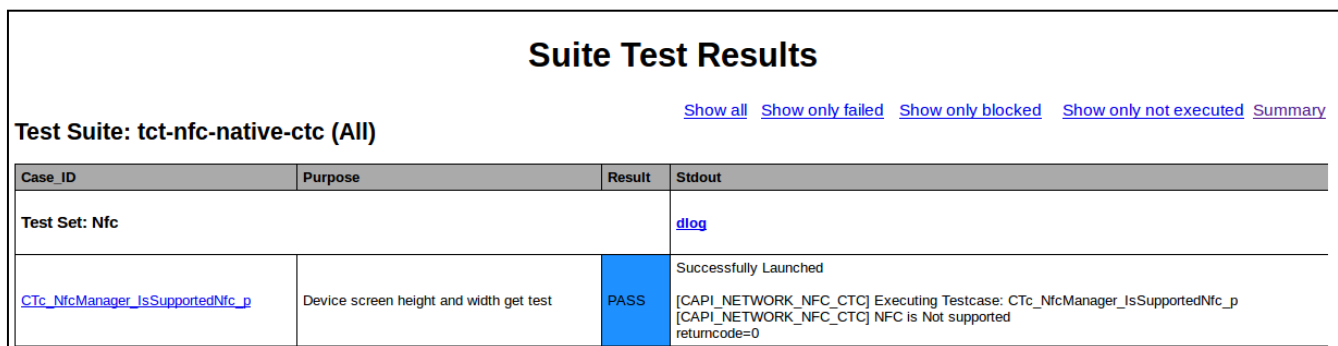


Figure 23: View the Execution Report Details in TCT-Manager

4.12. Execution Log Export:

Export execution log by clicking export button marked red in Figure-23.

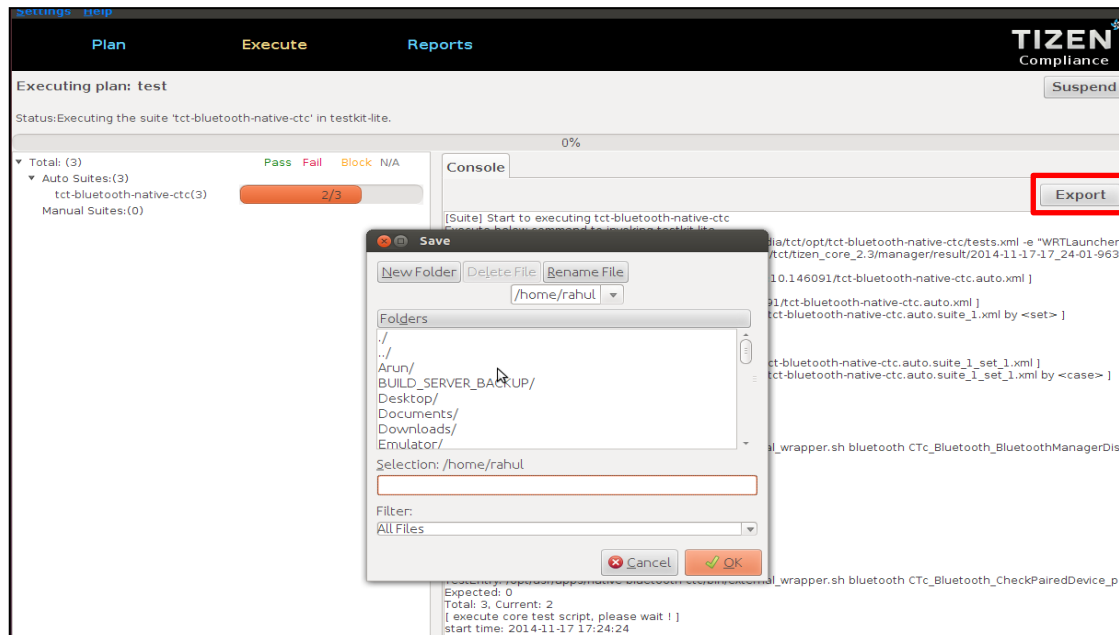


Figure 24: Exporting Log of Execution Report from TCT-Manager

4.13. Stop Execution:

While executing test suites if executions need to be stopped, click the window close button which will prompt like below (Figure 24).

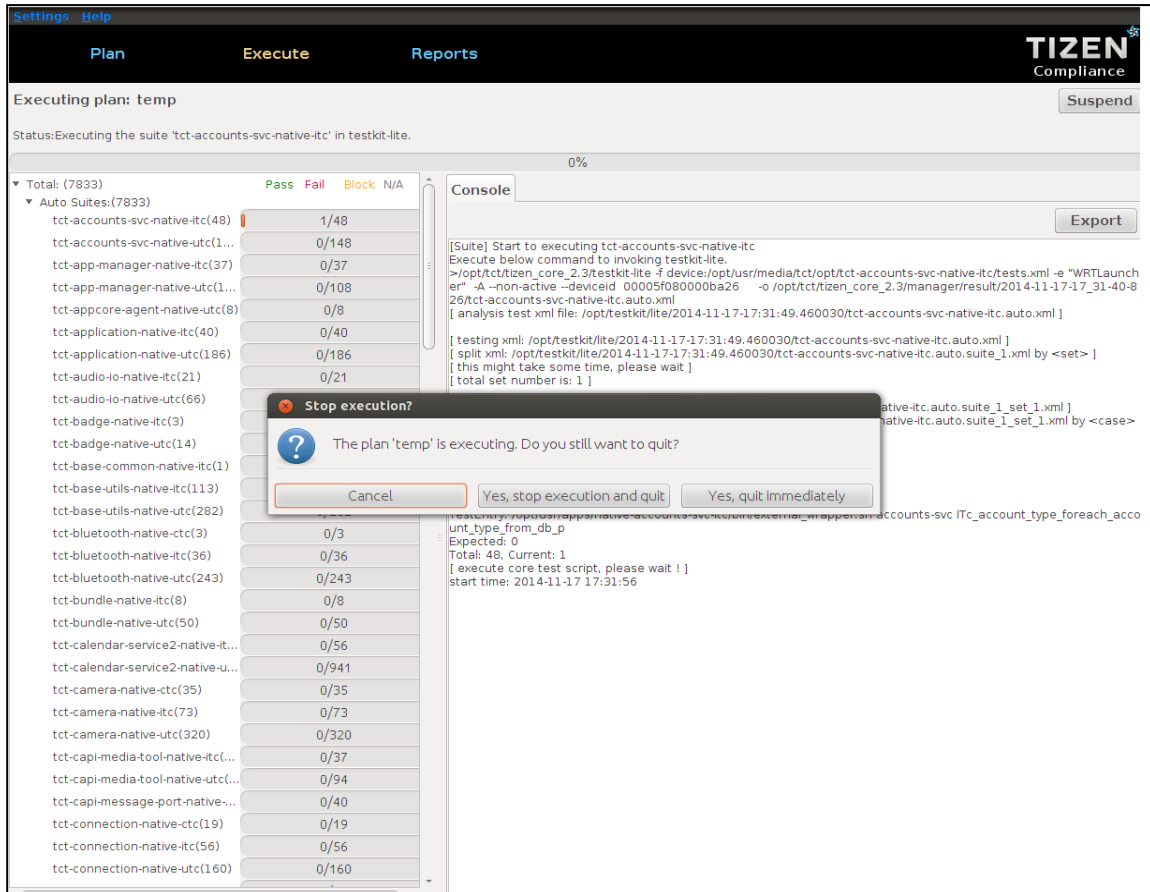


Figure 25: Stop the test-suite execution while execution is running in TCT-Manager

4.14. Rerun Failed Test Cases:

If you want to re-run for failed test cases, click rerun button (Figure 25).

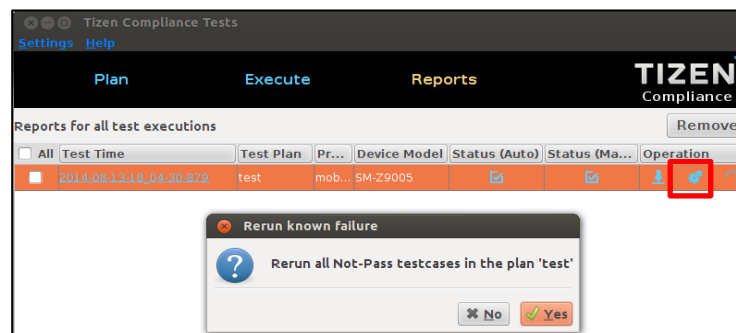


Figure 26: Rerun Failed TCs

5. Appendix

- Certain ports should be opened if company firewall is applied to Wi-Fi being used. These ports are needed to create email account, download file and sppc module for sending and receiving push notifications.

5223, 110, 143, 465, 587, 993, 995, 8000, 8081, 8088, 8080, 80, 443