



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 on PC
2. Install JDK 1.6 or newer version on Linux PC.
3. These packages should be installed before installing TCT-Manager

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

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

```
$ sudo apt-get install timeout
```

```
$ 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*'
```

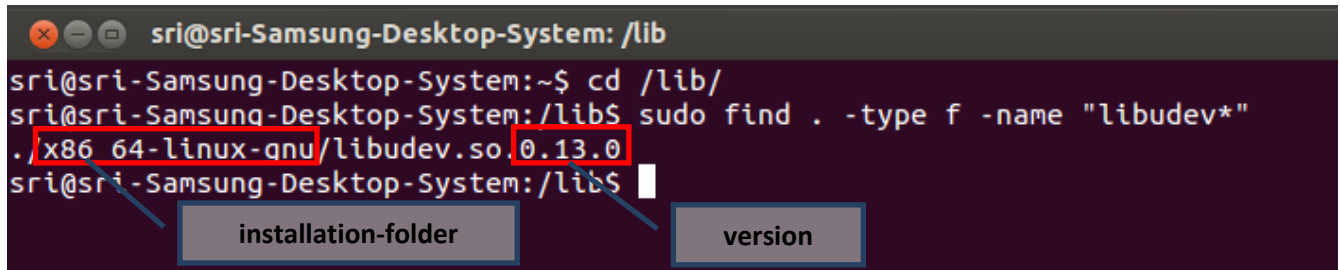


Figure 1: Getting location of libudev

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
```

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

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

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

3. TCT-Manager Installation Process

3.1. Tools Permission:

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

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

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

Change mode of the native-tct-2.3.1 directory

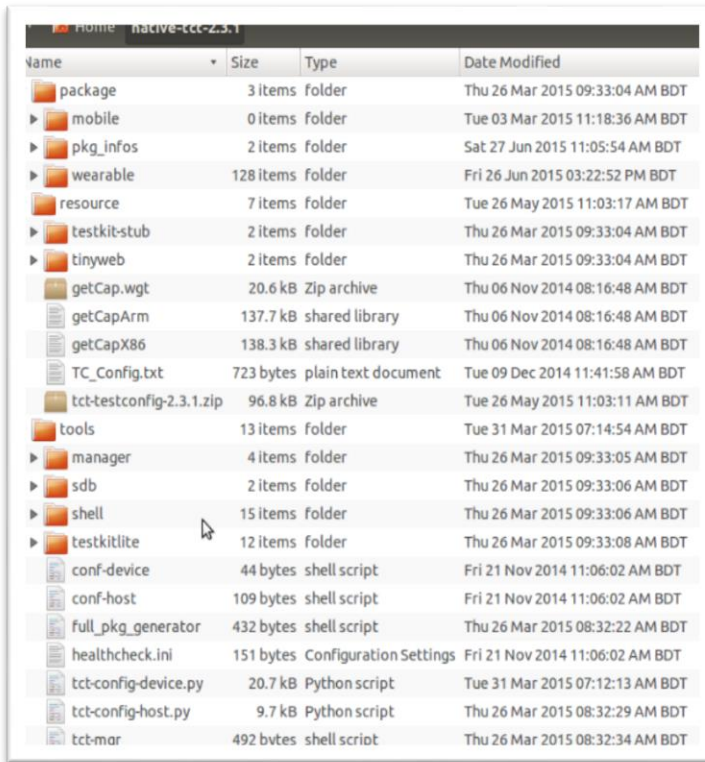
```
~$ sudo chmod 777 -R native-tct-2.3.1
```

Move to the native-tct-2.3.1/tools directory

~\$ **cd native-tct-2.3.1/tools**

3.2. Folder structure:

You will find the folder structure like below:



Name	Size	Type	Date Modified
package	3 items	folder	Thu 26 Mar 2015 09:33:04 AM BDT
mobile	0 items	folder	Tue 03 Mar 2015 11:18:36 AM BDT
pkg_infos	2 items	folder	Sat 27 Jun 2015 11:05:54 AM BDT
wearable	128 items	folder	Fri 26 Jun 2015 03:22:52 PM BDT
resource	7 items	folder	Tue 26 May 2015 11:03:17 AM BDT
testkit-stub	2 items	folder	Thu 26 Mar 2015 09:33:04 AM BDT
tinyweb	2 items	folder	Thu 26 Mar 2015 09:33:04 AM BDT
getCap.wgt	20.6 kB	Zip archive	Thu 06 Nov 2014 08:16:48 AM BDT
getCapArm	137.7 kB	shared library	Thu 06 Nov 2014 08:16:48 AM BDT
getCapX86	138.3 kB	shared library	Thu 06 Nov 2014 08:16:48 AM BDT
TC_Config.txt	723 bytes	plain text document	Tue 09 Dec 2014 11:41:58 AM BDT
tct-testconfig-2.3.1.zip	96.8 kB	Zip archive	Tue 26 May 2015 11:03:11 AM BDT
tools	13 items	folder	Tue 31 Mar 2015 07:14:54 AM BDT
manager	4 items	folder	Thu 26 Mar 2015 09:33:05 AM BDT
sdb	2 items	folder	Thu 26 Mar 2015 09:33:06 AM BDT
shell	15 items	folder	Thu 26 Mar 2015 09:33:06 AM BDT
testkitlite	12 items	folder	Thu 26 Mar 2015 09:33:08 AM BDT
conf-device	44 bytes	shell script	Fri 21 Nov 2014 11:06:02 AM BDT
conf-host	109 bytes	shell script	Fri 21 Nov 2014 11:06:02 AM BDT
full_pkg_generator	432 bytes	shell script	Thu 26 Mar 2015 08:32:22 AM BDT
healthcheck.ini	151 bytes	Configuration Settings	Fri 21 Nov 2014 11:06:02 AM BDT
tct-config-device.py	20.7 kB	Python script	Tue 31 Mar 2015 07:12:13 AM BDT
tct-config-host.py	9.7 kB	Python script	Thu 26 Mar 2015 08:32:29 AM BDT
tct-mar	492 bytes	shell script	Thu 26 Mar 2015 08:32:34 AM BDT

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

3.3. For Host Configuration:

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
```

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

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 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

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

4. TCT Source Build and Install

4.1. Build and Install packages

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 7. 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 8. Install a package

5. Execute Test Suites

5.1. Run TCT-Manager:

Execute the following command:

\$ tct-mgr

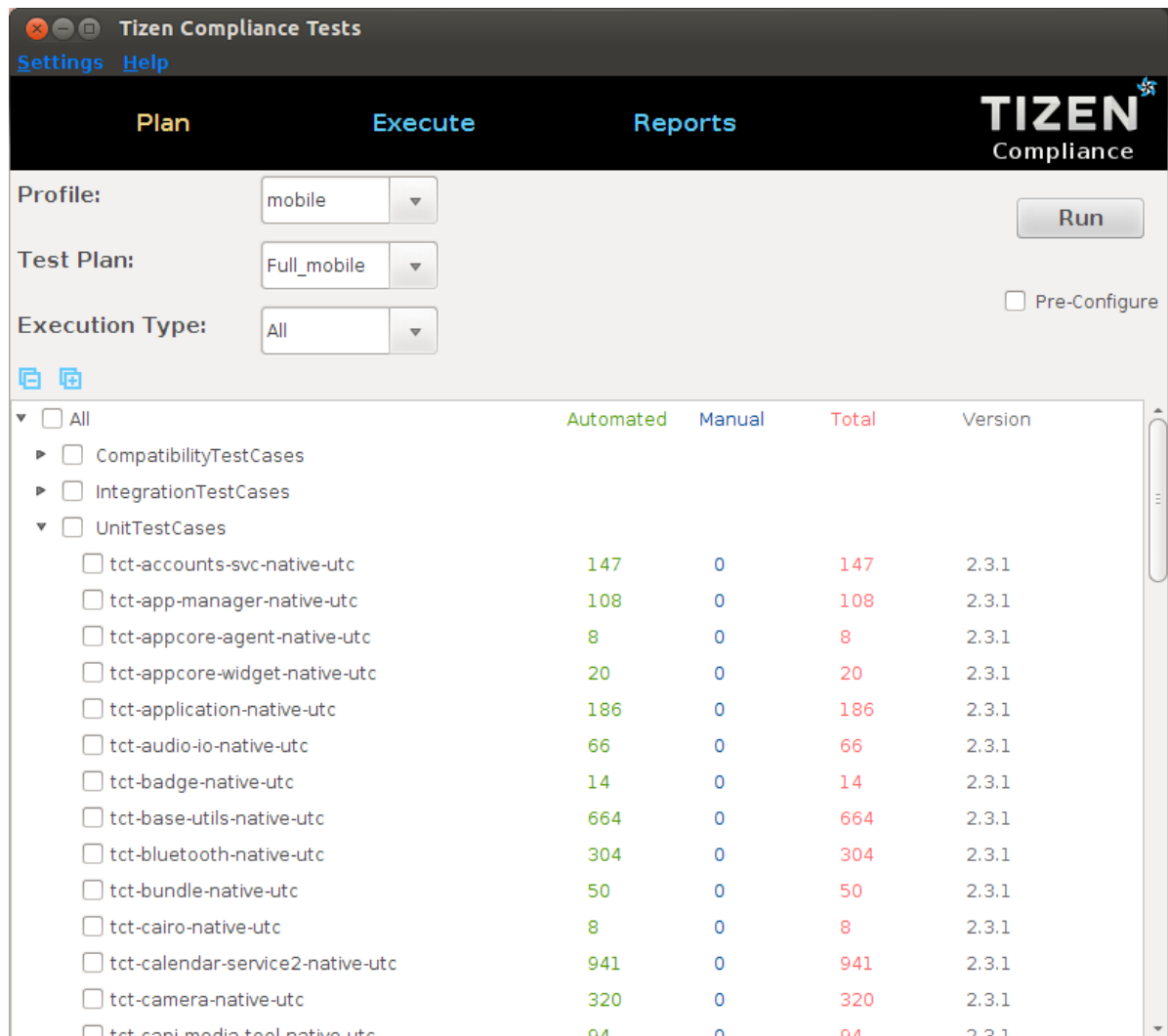


Figure 9: TCT-Manager UI

5.2. Choose Profile:

Choose your profile from profile combo box.

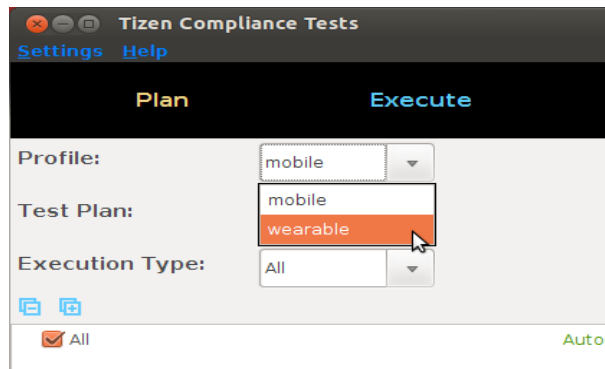


Figure 10: Select Profile

5.3. Choose Target:

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

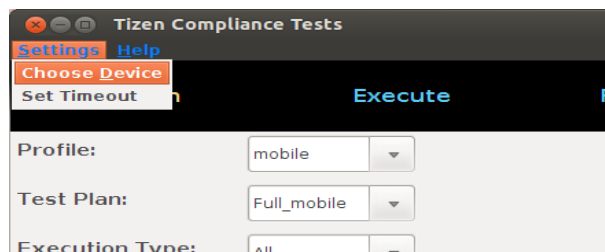


Figure 11: Choose device in TCT-Manager UI

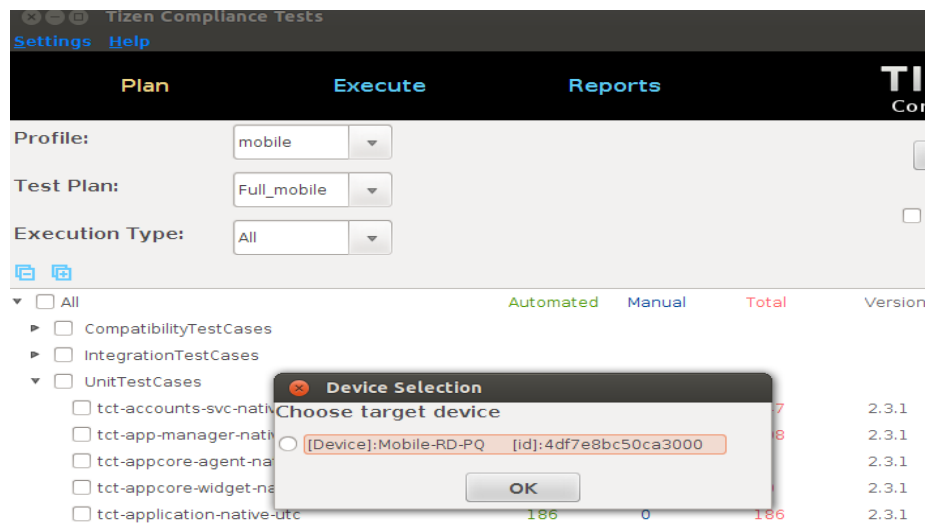


Figure 12: Device selection in TCT-Manager

5.4. 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'.
5. press 'Run' button
6. Create a new test plan.

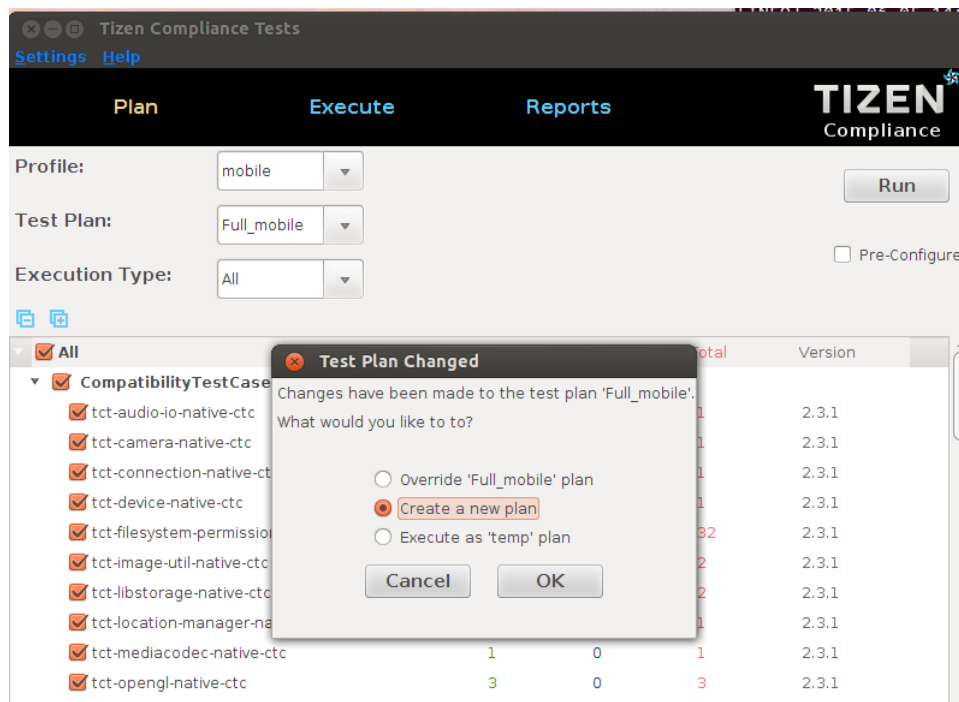


Figure 13: Creating a new plan in TCT-Manager

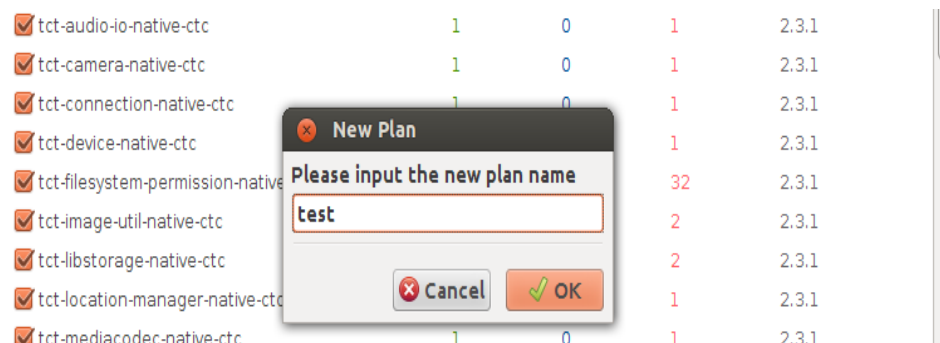


Figure 14: Input plan name in TCT-Manager

5.5. 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.

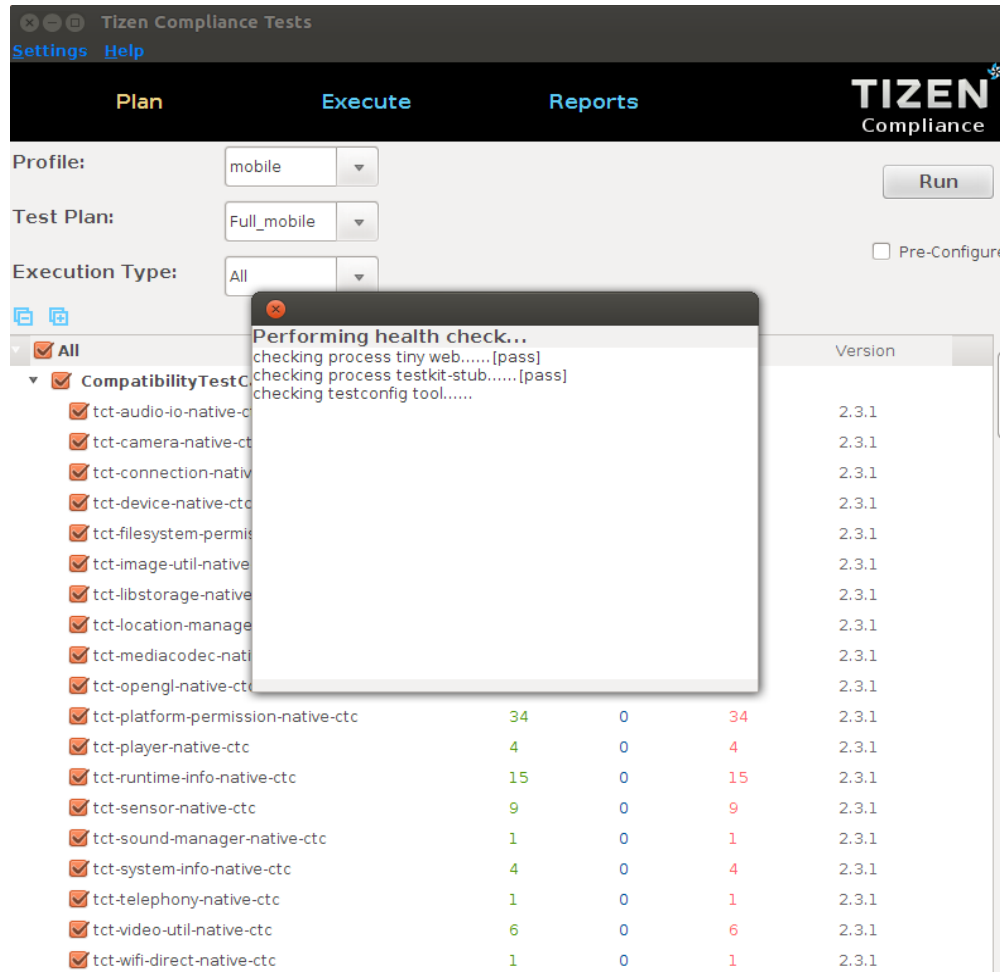


Figure 15: Health check monitoring after execution Run in TCT-Manager

5.6. 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.

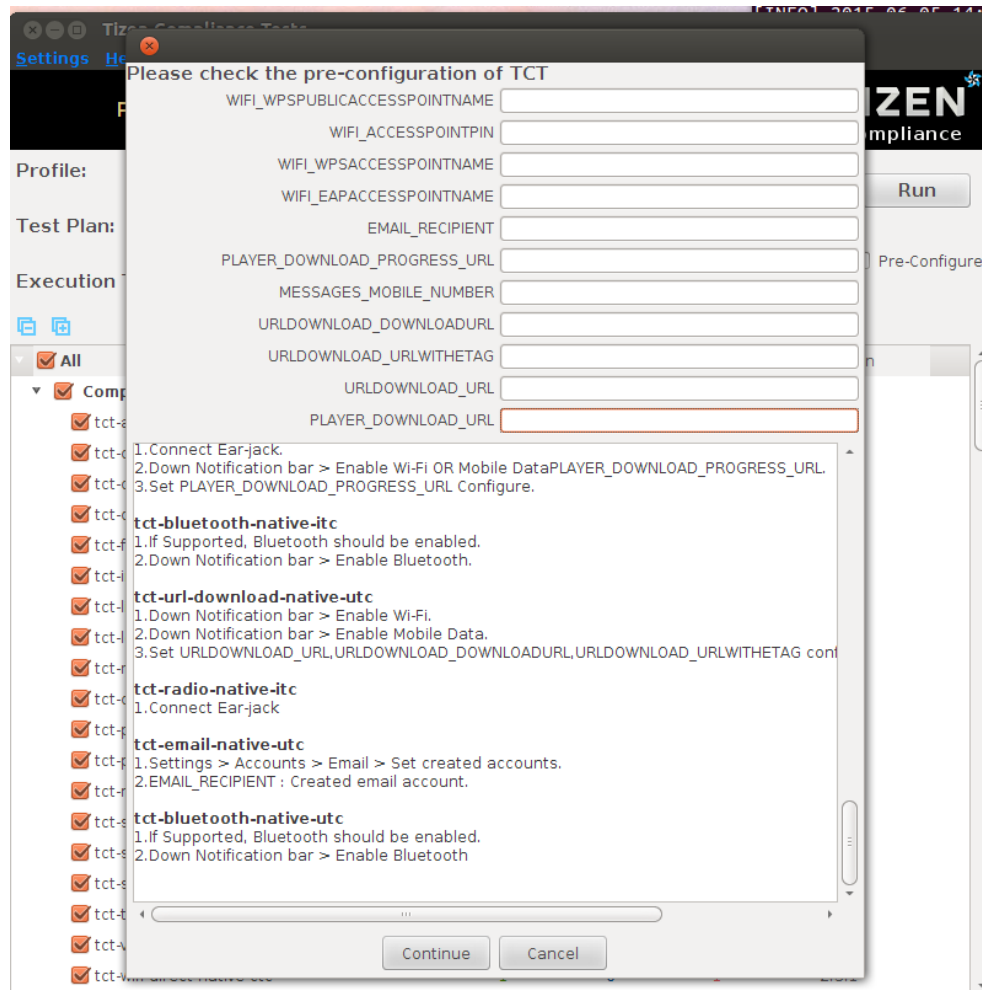


Figure 16: Edit Pre-Configuration file before execution.

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/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.
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
system-settings	1. Enable USB Debugging 2. Enable Key Motion 3. Enable silent mode 4. SET 24 hour time format 5. Mobile Data Network should be enabled.	*Settings > Developer Options > Enable USB Debugging *Down Notification bar > Enable Mute Mode *Settings > Date and Time > Enable 24-hour clock *Down Notification bar > Enable Mobile Data
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_WPSPUBLICACCESSPOINTNAME : (Router should be in WPS mode & public (i.e. without password)) *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.)>

Packages	Pre-requisites	DEVICE [How to find Information]
bluetooth	If Supported, Bluetooth should be enabled.	*Down Notification bar > Enable Bluetooth
libstorage	If Supported, SD card should be inserted.	*Insert SD card.
messages	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM Card *SDN & SPN information should be written in SIM Card. (Only allow to write this information to tele-company) [Set the Pre-Configure dialog of TCT-Manager UI] *MESSAGES_MOBILE_NUMBER ex) +821012345678
platform-permission	If Supported, Bluetooth should be enabled.	*Down Notification bar > Enable Bluetooth
telephony	If Supported, SIM Card (call, message, data network) should be inserted.	*Insert SIM card.

5.7. Execution Progress:

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

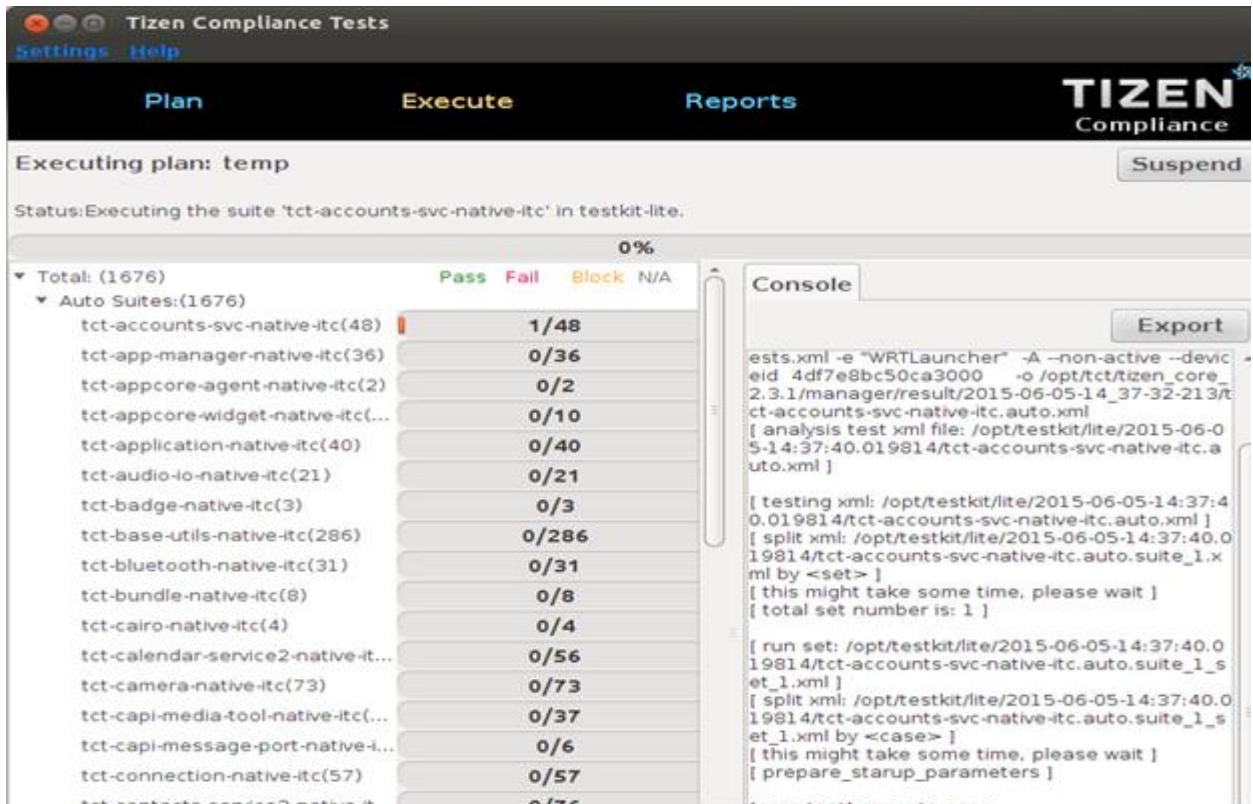


Figure 17: Execution progress while Running Test Suite in TCT-Manager

5.8. Execution Report:

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

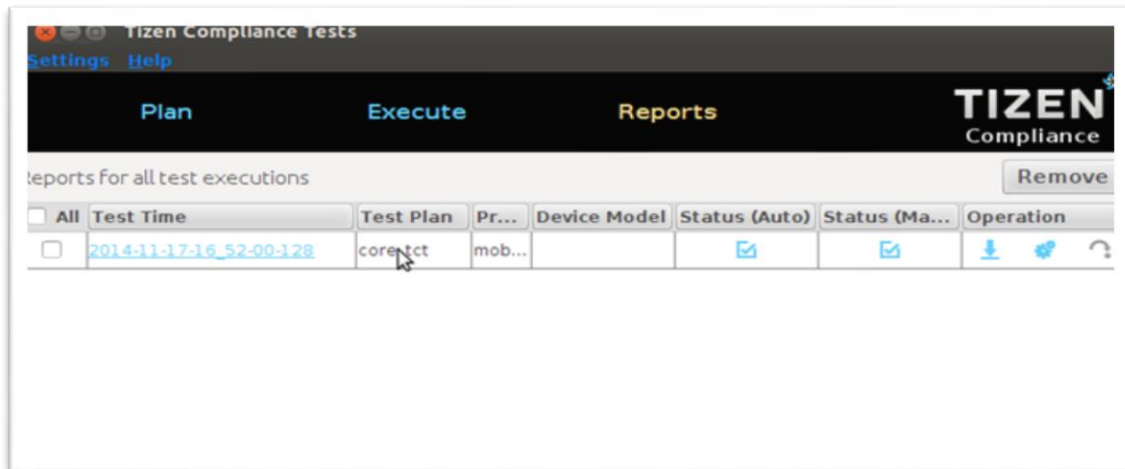


Figure 18: Execution report after completing execution in TCT-Manager

5.9. Download Result:

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

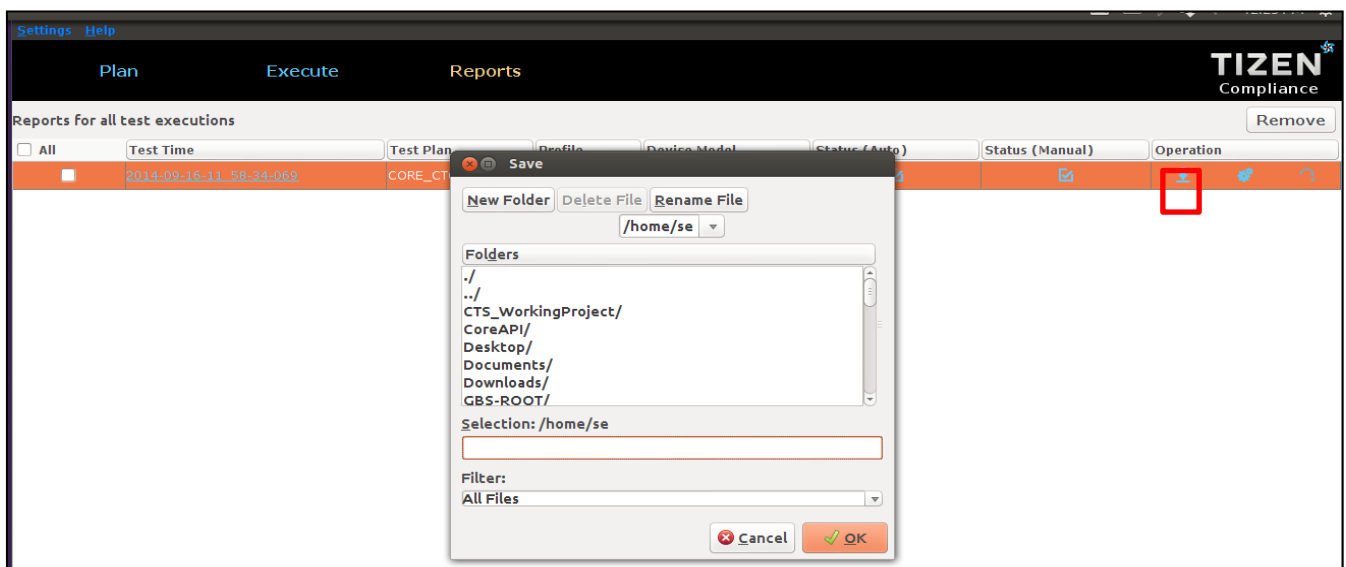


Figure 19: Download the Execution report in TCT-Manager

5.10. View Result Summary:

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

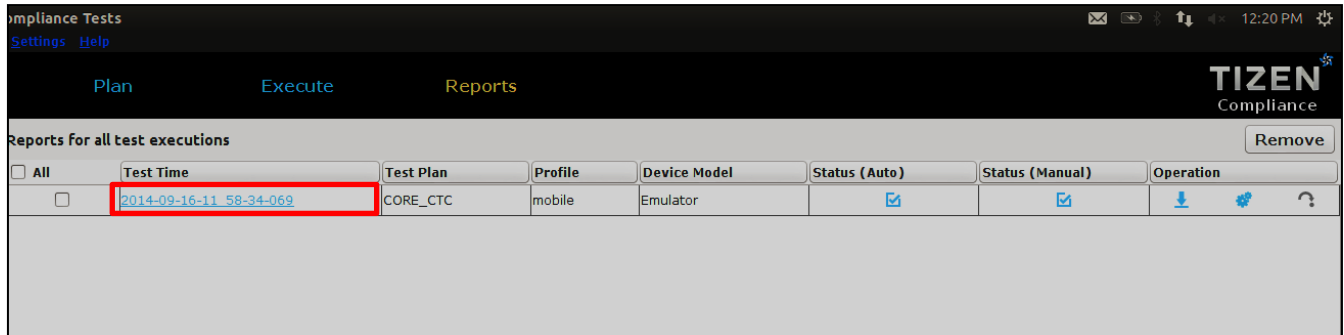


Figure 20: View the Execution report in TCT-Manager

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.

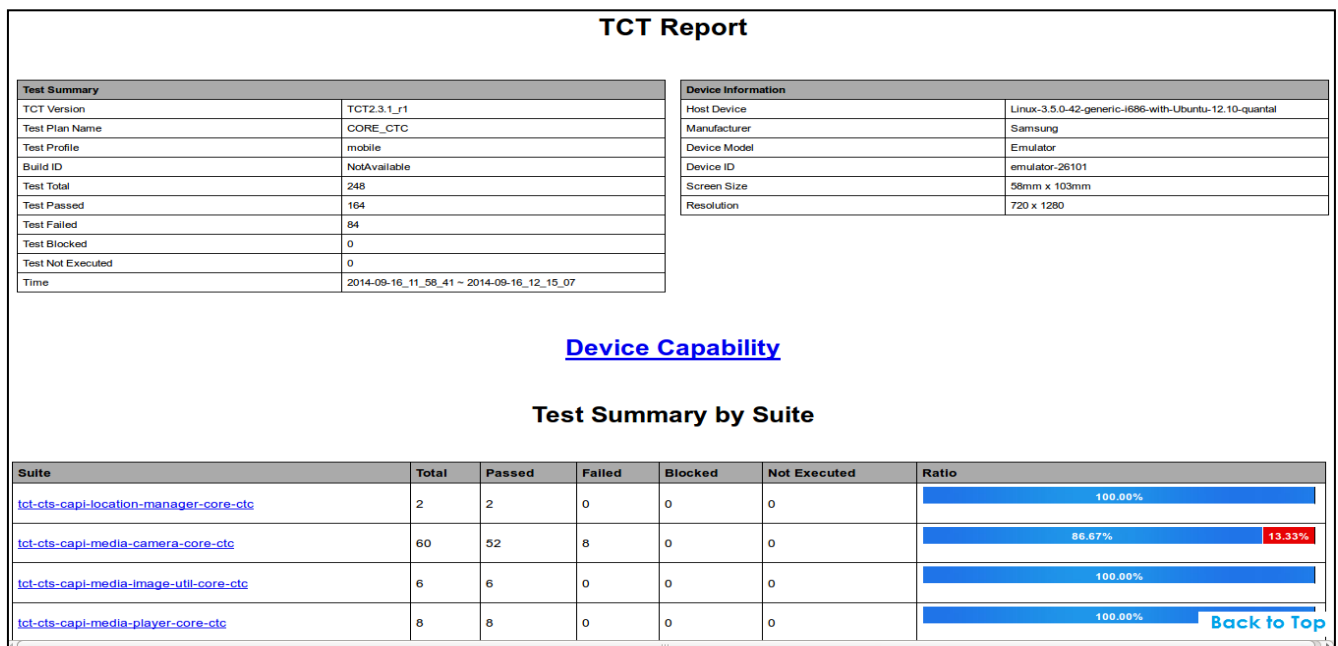


Figure 21: View the Execution report summary in TCT-Manager

5.11. 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).

Suite Test Results			
Test Suite: tct-nfc-native-ctc (All)			
Show all Show only failed Show only blocked Show only not executed Summary			
Case_ID	Purpose	Result	Stdout
Test Set: Nfc			dlog
CTc_NfcManager_IsSupportedNfc_p	Device screen height and width get test	PASS	Successfully Launched [CAPI_NETWORK_NFC_CTC] Executing Testcase: CTc_NfcManager_IsSupportedNfc_p [CAPI_NETWORK_NFC_CTC] NFC is Not supported returncode=0

Figure 22: View the Execution Report Details in TCT-Manager

5.12. Execution Log Export:

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

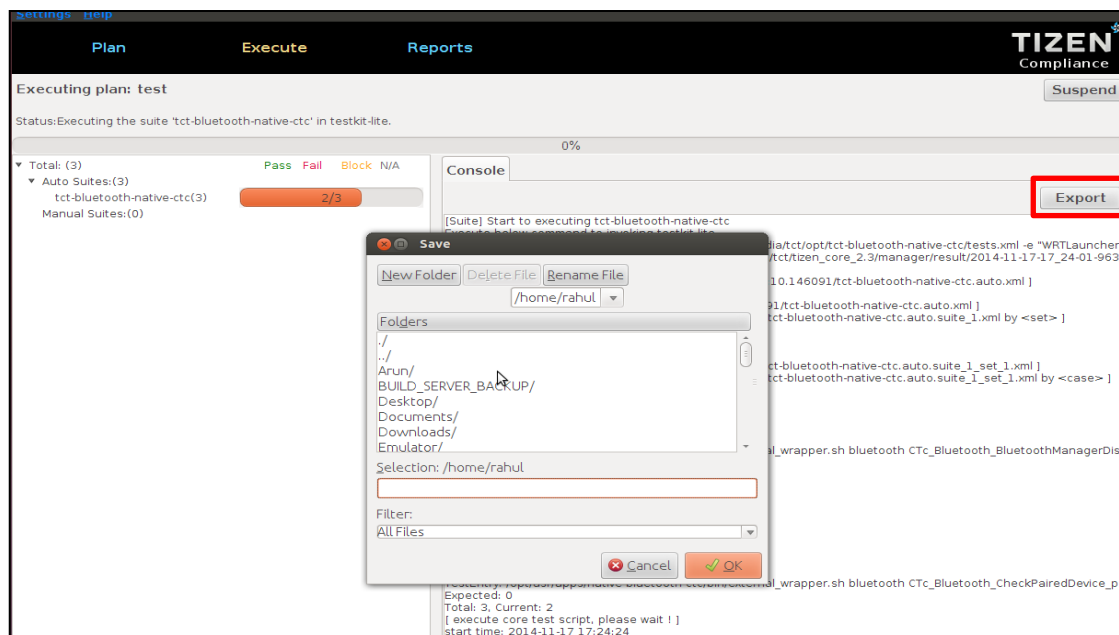


Figure 23: Exporting Log of Execution Report from TCT-Manager

5.13. Stop Execution:

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

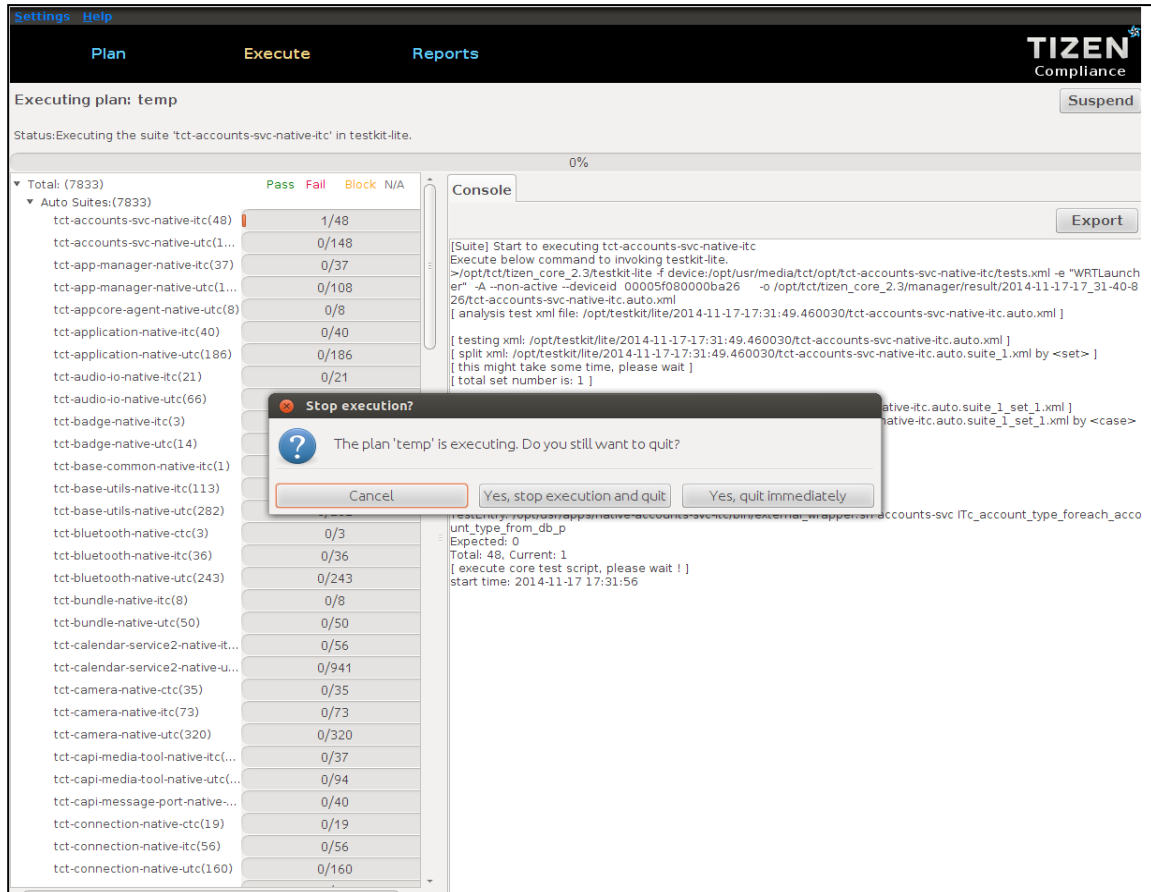


Figure 24: Stop the test-suite execution while execution is running in TCT-Manager

5.14. Rerun Failed Test Cases:

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

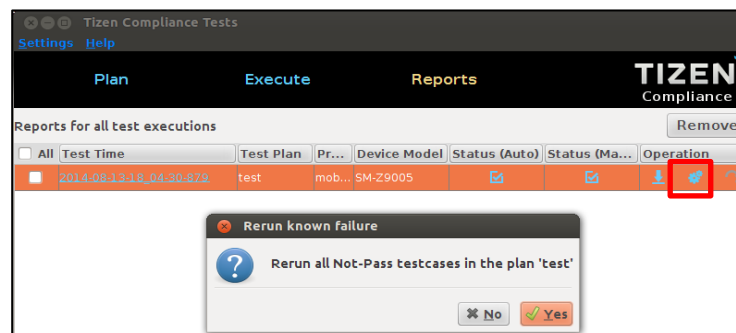


Figure 25: Rerun Failed TCs

6. 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