XR829 Bluetooth Xrbt_TestMode Tool User Guide

Android 8.0 & Android 9.0 & Linux

Revision 1.0.1

Dev 13, 2019

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Revision History

Version	Data	Summary of Changes
1.0.0	2019-08-09	Initial Version
1.0.1	2019-12-13	Support Bluez

Table 0-1 Revision History

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Tables and Figures

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1 Xrbt_TestMode Test Tool Introductions

Xrbt_TestMode test tool is mainly used for setting XR829 BT to be in BT Signaling test mode , so that we can establish an ACL connection with a comprehensive tester to test BT RF performance. This command line tool enables BT Signaling test mode by sending HCI command "Enable_Device_Under_Test_Mode" to BT firmware.

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2 Xrbt_TestMode Software Environment

Figure 3-1 shows the software operating environment of Xrbt_TestMode :

Platform	A50 + XR829	R328+XR829
System	Android 8.1,Android9.0	Linux+Bluez
Others	Adb tool	Adb tool

Table 2-1 Software operating environment of Xrbt_TestMode

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3 Operation instructions

3.1 Function Description

The picture below shows the process of using Xrbt_TestMode command line tool to enable BT Signaling test mode:

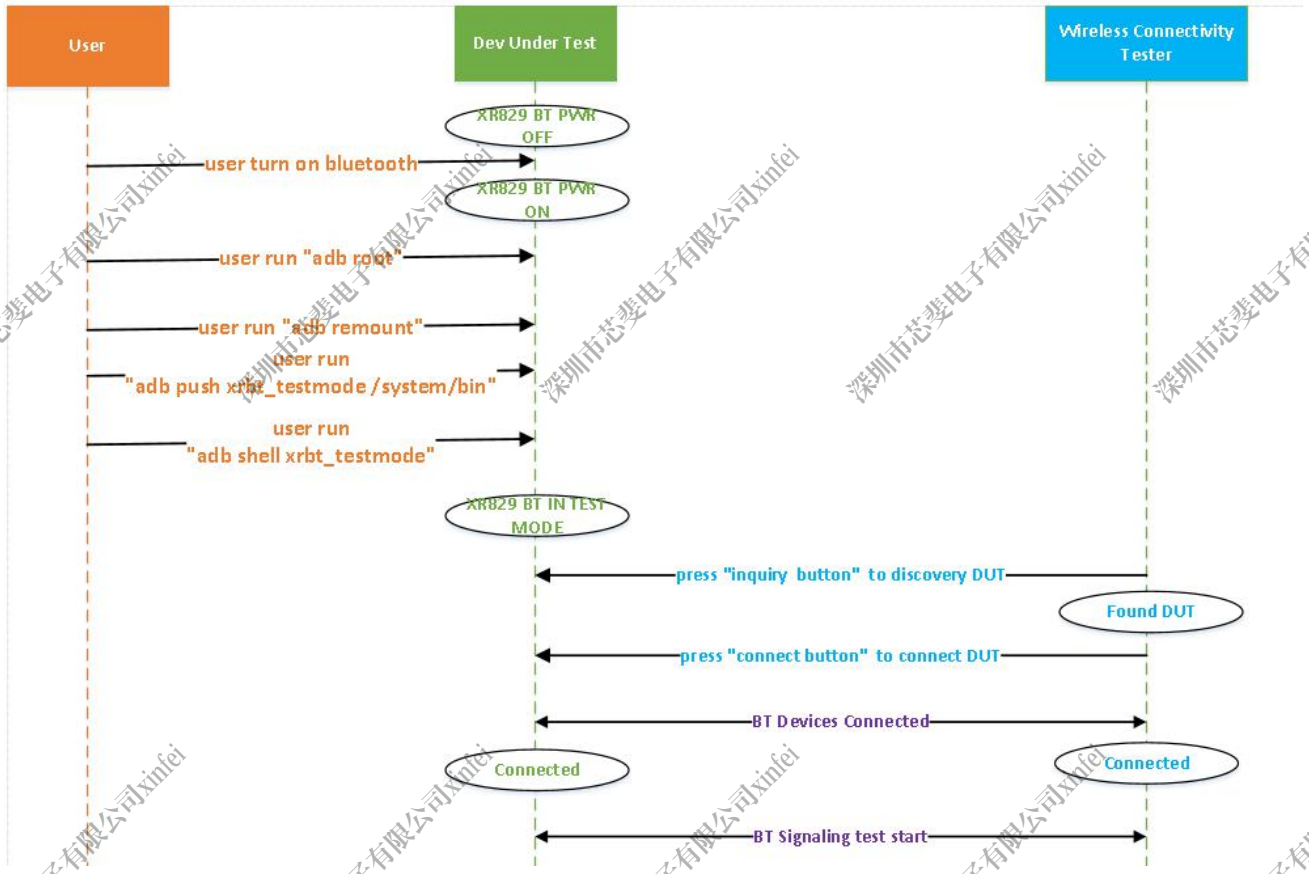

Figure 3-1 The process of using Xrbt_TestMode to enable BT Signaling test mode

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Usages of this tool are as follows:

Commands and parameters	Host Platform	Description
xrbt_testmode	android	Open "/dev/ttyS1" file node and write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.
xrbt_testmode -e	android	1) Open or re-open Bluetooth. 2) Open "/dev/ttyS1" file node and write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.
xrbt_testmode -v	android/linux bluez	Get version info of xrbt_testmode.
xrbt_testmode -h	android/linux bluez	Get help info of xrbt_testmode.
xrbt_testmode <ttyname>	android	Open "/dev/ttyname" Bluetooth uart node and write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.
xrbt_testmode /path/ttyname	android	Open "/path/ttyname" Bluetooth uart node and write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.
xrbt_testmode -e ttyname	android	1) Open or re-open Bluetooth. 2) Open "/path/ttyname" Bluetooth uart node and write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.
xrbt_testmode -i <type><id>	linux bluez	such as: xrbt_testmode -i hci0 write "Enable_Device_Under_Test_Mode" HCI command to enable BT Signaling test mode.

Table 3-1 Xrbt_testmode tool command list

3.2 Steps for Using Tools On the Android Platform

3.2.1 Prepare the test platform

There are two ways to prepare the test platform: 1)Run script 2)Configure manually

1）Run script

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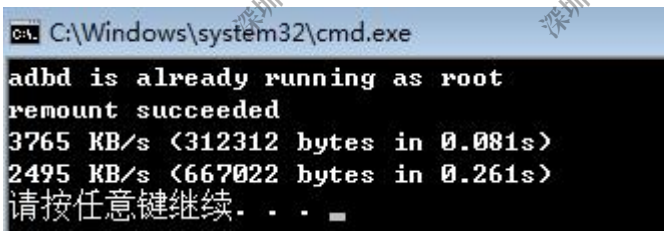
The command set for prepare the test platform is integrated in the script "**install_tools.bat**". Double-click to run the script , install test tools:

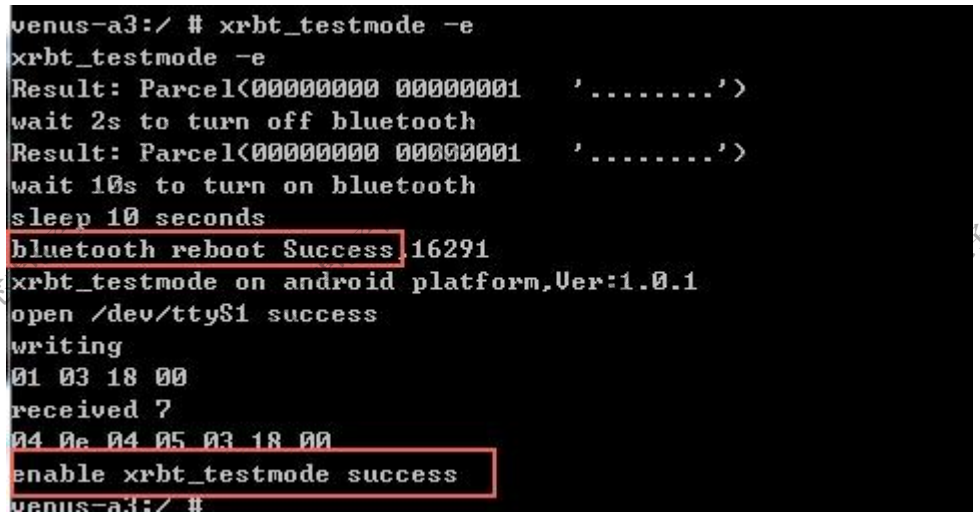


2）Configure manually

```
adb root    //You need to root before you can use xrbt_testmode normally.

adb remount

adb push xrbt_testmode_V1.0.1 /vendor/bin/xrbt_testmode

adb shell chmod 755 /vendor/bin/xrbt_testmode
```

3.2.2 Configuring the test environment

1)On the Android platform, you need to ture on Bluetooth or use “xrbt_testmode -e” to restart Bluetooth. After restarting the Bluetooth, the mechine will directly enable BT Signaling test mode.



2)If Bluetooth is already on, using command “xrbt_testmode” directly, Open “/dev/ttyS1” file node and write “Enable_Device_Under_Test_Mode” HCI command to enable BT Signaling test mode.

```
venus-a3:/# xrbt_testmode
```

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```
venus-a3:/ # xrbt_testmode
xrbt_testmode
xrbt_testmode on android platform,Ver:1.0.1
open /dev/ttyS1 success
writing
01 03 18 00
received 7
04 0e 04 05 03 18 00
enable xrbt_testmode success
venus-a3:/ #
```

For the usage and description of other related instructions, please read *Table 3-1*.

3.3 Steps for Using Tools On the Android Platform

3.3.1 Prepare the test platform

1)First make sure the XR829 BT bin file exists

2)Push xrbt_testmode file to the system

```
adb push xrbt_testmode_V1.0.1 /usr/bin

## xrbt_testmod file name modified according to the actual situation

adb shell chmod 755 /usr/bin/xrbt_testmode_V1.0.1  ## Modify file permissions
```

3.3.2 Configuring the test environment

1)Turn on Bluetooth

```
root@TinaLinux:/# run_bluez.sh
```

2)Make sure Bluetooth is turned on

```
root@TinaLinux:/# hciconfig -a
```

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```
root@TinaLinux:/# hciconfig -a
hciconfig -a
hci0:   Type: BR/EDR  Bus: UART
        BD Address: 22:22:52:70:1C:F8  ACL MTU: 1021:8  SCO MTU: 255:4
        UP RUNNING PSCAN ISCAN
        RX bytes:1273 acl:0 sco:0 events:71 errors:0
        TX bytes:1903 acl:0 sco:0 commands:71 errors:0
        Features: 0xbf 0xfe 0xcd 0xfe 0xdb 0xfd 0x7b 0x87
        Packet type: DM1 DM3 DM5 DH1 DH3 DH5 HV1 HV2 HV3
        Link policy: RSWITCH SNIFF
        Link mode: SLAVE ACCEPT
        Name: 'aw-701C-bt-test'
        Class: 0x240000
        Service Classes: Rendering, Audio
        Device Class: Miscellaneous,
        HCI Version: 4.1 (0x7)  Revision: 0xc16
        LMP Version: 4.1 (0x7)  Subversion: 0xc16
        Manufacturer: not assigned (1597)

root@TinaLinux:/#
```

3)Enter test mode

```
adb shell

root@TinaLinux:/# xrbt testmode -i hci0
```

```
root@TinaLinux:/# xrbt_testmode -i hci0
xrbt_testmode -i hci0
xrbt_testmode on bluez platform.Ver:1.0.1
writing
01 03 18 00
> HCI Event: 0x0e plen 4
04 0e 04 05
enable xrbt_testmode success
root@TinaLinux:/#
```

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4 Q & A

4.1 How to confirm BT uart file node?

Use “adb shell ls -la /dev” command to confirm, as shown in the red part of the figure below:

```
crw-rw-rw-  1 root      root            5,   0 2019-06-25 22:05 tty
crw-------  1 root      root          247,   0 2019-06-27 19:37 ttyS0
crw-rw----  1 bluetooth net_bt_admin 247,   1 2019-06-27 19:38 ttyS1
crw-rw----  1 system    vpn            10, 200 2019-06-25 22:05 tun
crw-rw----  1 uhid      uhid           10, 239 2019-06-25 22:05 uhid
crw-rw----  1 system    bluetooth      10, 223 2019-06-25 22:05 uinput
crw-rw-rw-  1 root      root            1,   9 2019-06-25 22:05 urandom
drwxrwx---  3 shell     shell                60 2019-06-25 22:06 usb-ffs
```

Figure 4-1 Get the uart node Blutooth used

4.2 How to confirm whether BT test mode is enabled or not?

1) If Bluetooth is enabled, when you execute “xrbt_testmode” command and BT test mode is enabled successfully, the console will show the following tips:

```
venus-a3:/ # xrbt_testmode
xrbt_testmode
xrbt_testmode /dev/ttyS1
open /dev/ttyS1 success
write hci cmd 1 times
write hci cmd 2 times
receive xrbt_testmode cmpl evt:0x04,0x0e,0x04,0x05,0x03,0x18,0x00
enable xrbt_testmode success
venus-a3:/ #
```

Figure 4-2 Enable BT test mode successfully

2) If Bluetooth is disabled, when you execute “xrbt_testmode” command, BT test mode cannot be enabled successfully, the console will show the following tips:

```
venus-a3:/ # xrbt_testmode
xrbt_testmode
xrbt_testmode /dev/ttyS1
open /dev/ttyS1 success
write hci cmd 1 times
enable xrbt_testmode timeout:8s
enable xrbt_testmode fail
venus-a3:/ #
```

Figure 4-3 Failed to enable BT test mode

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3) When you execute “xrbt_testmode -e” command, Bluetooth will be enabled, and if BT test mode is enabled successfully, the console will show the following tips:

```
venus-a3:/ # xrbt_testmode -e
xrbt_testmode -e
Result: Parcel(00000000 00000001    '........')
wait 2s to turn off bluetooth
Result: Parcel(00000000 00000001    '........')
wait 10s to turn on bluetooth
sleep 10 seconds
bluetooth reboot Success,18642
xrbt_testmode /dev/ttyS1
open /dev/ttyS1 success
write hci cmd 1 times
receive xrbt_testmode cmpl evt:0x04,0x0e,0x04,0x05,0x03,0x18,0x00
enable xrbt_testmode success
venus-a3:/ #
```

Figure 4-4 Use “xrbt_testmode -e” command to open BT and enable test mode

4) Failed to enable BT test mode if entering the wrong uart file node:

```
venus-a3:/ # xrbt_testmode /dev/ttyS0
xrbt_testmode /dev/ttyS0
open /dev/ttyS0 success
write hci cmd 1 times
enable xrbt_testmode timeout:8s
enable xrbt_testmode fail
venus-a3:/ #
```

Figure 4-5 Failed to enable BT test mode if using the wrong uart file node

4.3 How to get the version information of Xrbt_testmode?

Use “xrbt_testmode -v” command to get the version info of xrbt_testmode:

```
venus-a3:/ # xrbt_testmode -v
xrbt_testmode -v
Version:1.0.0
xrbt_testmode Usage:
        xrbt_testmode [-h|-e|-v|?]  <tty> <type | id>
venus-a3:/ #
```

Figure 4-6 Get the version info of xrbt_testmode

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