

Quick Start Guide – Toughpad SDK for Android base models

Rev 1.1.1100.0

1. System Requirements

Refer to the following URL for system requirements.

[Japanese]

<https://faq.askpc.panasonic.co.jp/faq/docs/004825>

[English]

https://pc-dl.panasonic.co.jp/dl/docs/074968?dc%5B%5D=002016&no=1&score=1.0&sri=14106608&trn_org=2

2. Introduction

Toughpad API provides access to Panasonic specific features on the Toughpad/Toughbook devices for developers to use. Currently access to the following features is provided:

- 1) Barcode Reader – Access and scan 1D and 2D barcodes via the Barcode Reader Gadget or the built-in barcode reader.
- 2) Magnetic Stripe Reader – Access and scan magstripe cards such as credit cards or debit cards via the Magnetic Stripe Reader Gadget.
- 3) Application Buttons – Taking control of the device’s application buttons (A1 – A3 & side buttons).
- 4) Serial Port – Communication with a serial device through a USB-to-serial converter.
- 5) Smart Card Reader – Access and scan smart cards supported ISO7816 ClassA/B/C via the Smart Card Reader Gadget.

3. Toughpad SDK Layout

The folder structure for the Toughpad SDK is as follows:

- **Library** – Contains the Toughpad API JAR library that Android applications should link against to utilize Toughpad API.
- **Service** – Contains the Toughpad API Service which must be installed on any Toughpad device before the API can be used. The Toughpad API Service is required for FZ-B2 (Model number FZ-B2B).

- **Documentation** – Contains this document and javadoc generated documentation for the Toughpad API.
- **Samples** – Sample applications demonstrating use of Toughpad API.

4. Preparation for use

4.1. ADB Drivers

To begin development, the Toughpad/Toughbook device needs to be connected to the PC via ADB. Connect the Toughpad/Toughbook device to the PC via an USB Type-C cable (for FZ-A2, FZ-B2, and FZ-A3) or a micro-USB cable (for FZ-N1, FZ-X1, FZ-T1, FZ-L1, and P-01K), and the proper ADB drivers installed depending on the device.

ADB drivers for Toughpad/Toughbook are available on the URL below:

http://pc-dl.panasonic.co.jp/itn/drivers/d_menu_en.html#Toughpad

Follow these instructions to install the ADB driver:

<http://developer.android.com/tools/extras/oem-usb.html#InstallingDriver>

For FZ-B2, if your Toughpad device does not have USB Type-C interface, connect ADB via TCP/IP (Ethernet, Wi-Fi or etc). Follow these instructions to establish ADB connection via TCP/IP:

<http://developer.android.com/studio/command-line/adb.html>

4.2. FZ-B2 Toughpad API Service Installation

For other platforms other than FZ-B2B (MK1), this step is not needed since the Toughpad API Service is preinstalled for all other models like FZ-B2D (MK2), FZ-X1, FZ-N1, FZ-T1, FZ-L1, P-01K, FZ-A2 and FZ-A3.

Make sure the model number on FZ-B2 device first. Go to [Settings] > [About tablet] and confirm the Model number. If the model number is FZ-B2B (MK1), Toughpad API Service must be installed on the Toughpad device before Toughpad SDK can be used. If the model number is FZ-B2D (MK2), Toughpad API Service is pre-installed with the firmware.

To install the Toughpad API Service, from the [Service] folder in the SDK, execute the below ADB command:

```
$ adb install ToughpadApiService.apk
```

Once Toughpad API Service is installed, applications that use the API will work on the device.

For other platforms other than FZ-B2B, this step is not necessary as Toughpad API Service is pre-installed.

4.3. FZ-X1 Magnetic Stripe Reader Gadget Installation

Make sure the latest firmware is installed on the FZ-X1 device first. Go to [Settings] > [About tablet] > [System updates] and select Update from server. Once the latest firmware is installed, attach the gadget to the FZ-X1 (see instructions included in package). Once attached, Go to [Settings] > [External Device] and select the Gadget enable option.

During the first time your application runs, a dialog will appear asking if you would like to allow Toughpad API service to access the USB device, please select [Use by default for this USB device] and then click [OK].

4.4. FZ-A2 and FZ-B2 Barcode Reader Configuration

For FZ-A2 and FZ-B2, you need to switch the barcode reader device to Virtual COM mode before using Toughpad API. By Scanning the below barcode, the barcode reader gadget switches to Virtual COM mode.

All barcode reader (BCR) for FZ-A2/B2 is shipped with HID keyboard mode. When HID keyboard mode BCR reads a barcode, BCR sends contents as key events to application. Also, in HID keyboard mode, reader settings can be changed by reading configuration barcode.

1. Change to VCOM mode

To control BCR via Toughpad API, please change BCR mode to VCOM mode. After reading all configuration barcode, please read "Fig.1 VCOM setting barcode" to change BCR to VCOM mode. After change BCR to VCOM mode, please power off and reboot the tablet.

This VCOM setting barcode contains these settings.

- change BCR to VCOM mode
- change protocol to control BCR
- enable volatile mode

Note:

In volatile mode of BCR, any settings are not written to permanent area. This means any settings will lose after power off or sleep of the device.

If using configuration barcode to change readable symbologies etc., please read "VCOM setting barcode" again after all settings to enable volatile mode. When enabling volatile mode, all settings will be written to permanent area.

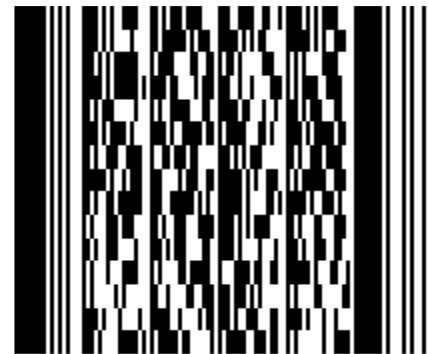


Fig.1 VCOM setting barcode

2. Change to factory default setting (HID keyboard mode)

To change BCR to factory default setting barcode (HID keyboard mode), please read "Fig.2 Factory default setting barcode (HID keyboard mode)". After change to factory default, please power off and reboot the tablet.

This factory default setting barcode contains these settings.

- initialize BCR module
- enable predefined symbologies

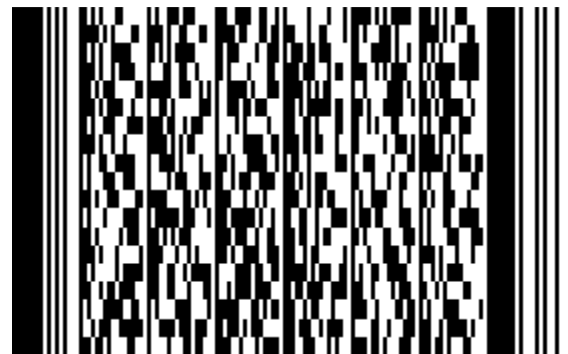


Fig.2 Factory default setting barcode
(HID keyboard mode)

*Note that when you scan the above barcode to switch the mode, you MUST restart the device. After OS restart, the service is enabled automatically.

5. Using the API on Visual Studio

Make sure you have followed the instructions under the “Preparation for use” section.

Copy the [Toughpad.jar] file from SDK [Library] folder into your Android project’s [libs] folder; this will cause the compiler to statically link against the Toughpad SDK library, allowing it to interface with the [Toughpad API service].

The API must be initialized before use, and uninitialized when it will not be used anymore (or the application is closed).

For this purpose, the **ToughpadApi.initialize()** and **ToughpadApi.destroy()** method calls are available. It is recommended to call these methods in the onCreate() callback and onDestroy() callbacks in the activity.

The **initialize()** method takes a **ToughpadApiListener** parameter which is invoked when the API has been initialized. Only after the **onApiConnected()** callback has been called can the API be used.

For further information, please look into the provided samples that demonstrate usage of the various APIs.

5.1. Using Toughpad SDK on Linux or Mac

After unpacking this package on Windows, copy the necessary libraries and documents to Linux or Mac. The usage of the API on Android Studio is same as Windows. Please refer the above steps.

5.2. Sample code

This package includes a sample application project for Android Studio IDE. The sample code has been confirmed on Android Studio Chipmunk | 2021.2.1 Patch 1.

To open the sample code, please use Android Studio Chipmunk | 2021.2.1 Patch 1 or later.

Revision history for this document

Revision		Date
1.0	First edition	2015.6.18
1.0.1000.0	Updates supported Toughpad device FZ-A2, FZ-B2, FZ-N1, and FZ-X1.	2017.5.31
1.0.1100.0	Describes API Levels in system requirement. Uploads barcode to switch to Virtual COM mode for FZ-A2 and FZ-B2.	2017.9.15
1.0.1101.0	Updates section 4.4	2017.11.6
1.0.1200.0	Adds supported device FZ-N1, FZ-T1, and P-01K. Adds the description for the serial port API.	2018.9.21
1.0.1300.0	Adds supported device FZ-L1.	2019.5.17
1.1.1000.0	Adds supported device FZ-A3. Adds the description for the Smart Card Reader API.	2020.6.30
1.1.1100.0	Updates sample code to support Android Studio Chipmunk 2021.2.1 Patch 1.	2022.7.28