1. Introduction

1.1 Purpose

This document describes the instruction of using WizarPOS Scan Service, including interface description, parameter description, and methods of calling the services.

1.2 User

The reader of this document is a developer who uses the WizarPOS Scan Service.

2. Project Background

2.1 Overview

The WizarPOS smart POS currently use enhanced and customized Android system as the OS, and as for the scan function, the Android system does not come with the barcode scan/2D barcode scan function, but use open source services, such as Zxing/Zbar. Many of the Android Apps that are used on smart POS devices, have already realized a very quick scan function.

However, there are many other applications are developed based on smart POS, not ready-made commercial applications. And many of the smart POS developers also have POS industry background, not professional Android developers. So when they start developing applications, they want to be provided with a convenient scan API by WizarPOS, instead of learning Zxing/Zbar themselves.

From the hardware point of view, the scan parts used on smart POS, are not necessarily the standard camera, there will be some transformation. In some cases, the scan part will be required to be a specialized hardware. Therefore, the direct use of Zxing / Zbar is not really applicable for WizarPOS smart POS, but need some modification and customization.

For the reasons above, we consider to develop WizarPOS Scan Services to facilitate the third-party developers in developing applications with scan function.

2.2 Scan Service Usage

The scan service is an app and started by using AIDL. The third-party apps custom their UI through by transfer some parameters.

3. Interface and parameter description

3.1 Interface description

3.1.1 ScanBarcode

This interface is a synchronous call interface.

When the application calls the interface, the scan service opens the camera as defined by the scan parameter and starts the scan. After the scan, the camera is turned off and the results are returned immediately

ScanResult scanBarcode(ScanParameter parameter);
Parameter:
ScanParameter

Return:
ScanResult

3.1.2 StartScan

This interface is an asynchronous call interface, indicating the continuous scan is started.

When the application calls this interface, the scan service opens the camera as defined by the scan parameter and starts the scan. After each scan, the results will be returned during the callback. After each callback is done, the next scan process starts.

void startScan(ScanParameter parameter, IScanCallBack callBack);
Parameter:
ScanParameter, IScanCallBack

Return:
void

3.1.3 FoundBarcode in IScanCallBack

When calling startScan(), the parameter IScanCallBack must be implement. The caller can get the ScanResult through this interface. When this interface is called, the scan service is in the pause state, and after the call is returned, the next scan action will be continued.

You can turn off the scan service that is in pause with “stopScan”.

void foundBarcode(ScanResult result);
Parameter:
ScanResult

Return:
Void

3.1.4 StopScan

Stop the continuous scan, and turn off the scan service's UI. After stop, other callers can call startScan, or scanBarcode interface.

Return:
Boolean, true/false.

3.1.5 getScanType(int index)

Get scanner type.
String getScanType(int index);
Parameter:
Int 0 or 1;
Return:
String “Scanner” or “Camera” or “Error”;

3.2 Parameter Description

3.2.1 ScanParameter

ScanParameter is a parameter object, it defines the parameters that need

by the scanner service.

method: set(String key, String value) (Value Not case sensitive)

Key	Value Type	Value	Description
window_top	int	Default: 0, Range: >0	The distance to the screen top. Effect in overlay mode. (dp)
window_left	int	Default: 0, Range: >0	The distance to the screen left. Effect in overlay mode. (dp)
window_width	int	Default: screen width Range: >0	Screen width. Effect in overlay mode. (dp)
window_height	int	Default: screen height Range: >0	Screen height. Effect in overlay mode. (dp)
enable_scan_section	boolean	Default: true Range: true/false	false: all the display window is the area for scanner, remove the scanner frame. true: customize the area of the scanner, has a scanner frame, the other part is semitransparent, the scanner frame is in center, can adjust the width or the height of the scanner frame.
scan_section_width	int	Default: 300dip Range: >0	The width of the scanner frame.
scan_section_height	int	Default: 300dip Range: >0	The height of the scanner frame.
display_scan_line	String	Default: moving Range: No/fixed/moving	Display the red line in scanner area. NO: Not display Fixed: In center Moving: Move up and down
enable_flash_icon	boolean	W1 上 Default:true Q1 上 Default:false Range: true/false	Whether to display the hover button of controlling the flash.
enable_switch_icon	boolean	Default: true Range: true/false	Whether to display the hover button of switching camera.
enable_indicator_lig	boolean	Default: false	Whether to display the indicator

ht		Range: true/false	light buton, only supported in Q1.
decodeformat	String	Default: BARCODE_ALL Range: Barcode Format	Decode format range. Default is BARCODE_ALL, the formats are separated by ",".
decoder_mode	int	Default: 2 Range: 0/1/2	Decode mode: 0: mode1 1: mode2 2: mode3
enable_return_image	boolean	Default: false Range: true/false	Whether to return the scanned image.
camera_index	int	Default: 0 Range: 0/1/2	0: main scanner(fixed camera). 1: second scanner(zomm camera). 2:customer display camera.
scan_time_out	long (ms)	Default: -1 Range: >0	<=0:scan forever >0:scan with timeout, when timeout, return timeout error, only effected in synchronized interface.
scan_section_border_color	int	Default: Color.WHITE	The color of scan border, use Color.argb
scan_section_corner_color	int	Default: Color.argb(0xFF, 0x21, 0xDB, 0xD5)	The color of the scan corner
scan_section_line_color	int	Default: Color.RED	The color of the scan line
scan_tip_text	String	Default: auto scan when grab the scanned picture	The tip text under the scan border
scan_tip_textSize	int	Default: 15	The size of the tip text Unit: sp
scan_tip_textColor	int	Default: Color.WHITE	The color of the tip text
scan_tip_textMargin	int	Default: 30	The distance between the tip text and the bottom of the screen Unit: dp
flash_light_state	boolean	Default: false	Initial state of flash light true: opened false: closed
indicator_light_state	boolean	Default: false	Initial state of indicator light true: opened false: closed

scan_mode	String	Default: dialog	Scanner window mode dialog: activity with specified UI overlay：only has scanner window, without UI titles, UI buttons, the scanner window on top of other UI activities
scan_camera_exposure	int	Default:0	Camera exposure compensation for zoom camera
scan_time_limit	int	Default:50	The max decode time
enable_mirror_scan	boolean	Default:true	Enable mirror scan Default is true, opened
enable_hands_free	boolean	Default:true	Enable handsfree will start motion detecting and motion illumination. Generally, when scan continually should enable it. **Only for Zebra scanner.**
enable_ui_by_zebra	boolean	Default:true	true: display UI, false: hide UI. If hide UI, the speed of start scanner will faster. **Only for Zebra scanner.**
enable_mobile_phone_screen_mode	boolean	Default:false	true: improves bar code reading performance on mobile phones and electronic displays, but may increase decode time. So if don't need to scan code from phone, please set it false. **Only for Zebra scanner.**
enable_upca_country	boolean	Default:true	true: after UPC_A decoding, show country code at the first place; false: after UPC_A decoding, hide country code at the first place. **Only for Zebra scanner.**
enable_decoding_illumination	boolean	Default:true	Enabling illumination usually results in superior images. The effectiveness of illumination decreases as the distance to the target increases. true: Enable Decoding Illumination, the decoder turns on illumination every image capture to aid

			decoding. false: Disable Decoding Illumination, the decoder does not use decoding illumination. **Only for Zebra scanner.**
enable_motion_illumination	boolean	Default:false	true: turns on motion illumination in hands-free and auto aim trigger modes. false: turns off motion illumination. This parameter only applies to hands-free mode. **Only for Zebra scanner.**

3.2.2 Scanner mode

In dialog mode, the scanner UI has drawed by the camera scanner service, the third app don't need to consider about the UI.

In overlay mode, the camera scanner service only provide the scanner window, the window will display on top of the third app UI. So the third app can draw the UI by itself, such as the title, the buttons. In this mode, if the app need to switch the camera, the flash light, the indicator light, it must use the broadcast like belows:

Camera:

Broadcast Action : com.wizarpos.scanner.setcamera

Broadcast Key: overlay_config

value: 0 Fixed camera;1 zoom camera; 2 customer display camera

Flash light:

Broadcast Action : com.wizarpos.scanner.setflashlight

Broadcast Key: overlay_config

Value: true opened; false closed

Indicator light:

Broadcast Action : com.wizarpos.scanner.setindicator

Broadcast Key : overlay_config

Value: true opened; false closed

Sample Code:

```
// open the flash light
Intent intent = new Intent();
intent.setAction(ScanParameter.BROADCAST_SET_FLASHLIGHT);
intent.putExtra(ScanParameter.BROADCAST_VALUE, true);
sendBroadcast(intent);
```

3.2.3 Zebra Scanner

Zebra scan requires the following conditions:

1. Exist Zebra imager.
2. Set the parameter “camera_index” to 0- main scanner.
3. When screen black, the imager can not work.
4. Set the parameter “enable_ui_by_zebra” to false- hide the default UI from system.

3.2.4 ScanResult

Field	Type	Description
resultCode	Int	>=0: Success <0: Failure See also Error Code
text	String	The text result, return null when error occurred, the format of the text is UTF-8, if need the other format, please get the raw buffer and change by yourself.
rawBuffer	Byte[]	The raw buffer
bitmap	Bitmap	The scanned image, it will return when set the parameter enable_return_image is true.
barcodeFormat	String	barcodeFormat, see Appendix

3.2.5 Error Code

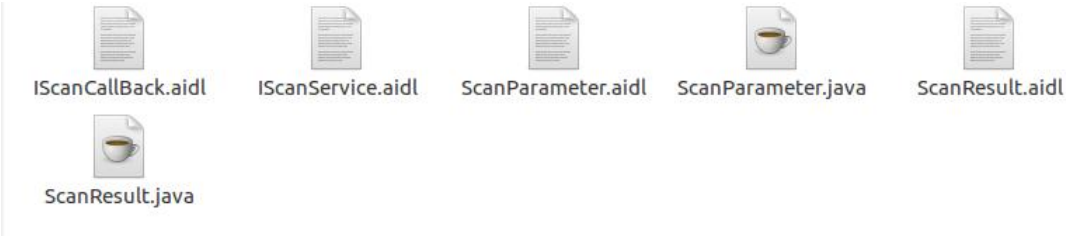
Value	Description
1	Success
0	Cancel
2	The scan UI fully display
-1	The service has been occupied
-2	Can not open the camera
-3	Scan timeout
-4	Illegal parameter

4.Usage

4.1 Scanner service integration

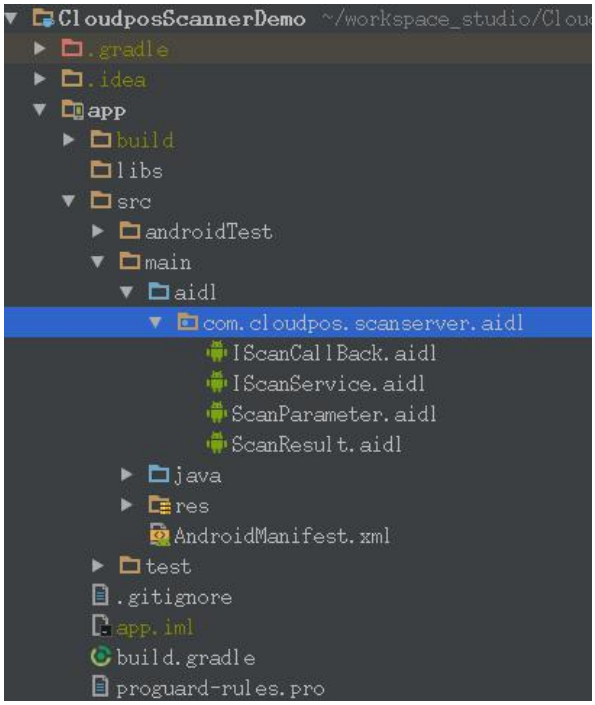
The scanner service use AIDL, so the third-party apps must include the AIDL files(get from \source\aidl from barcode SDK package) which provided by WizarPOS. The follows are described the methods of integrating in Eclipse and Android Studio.

The files includes:



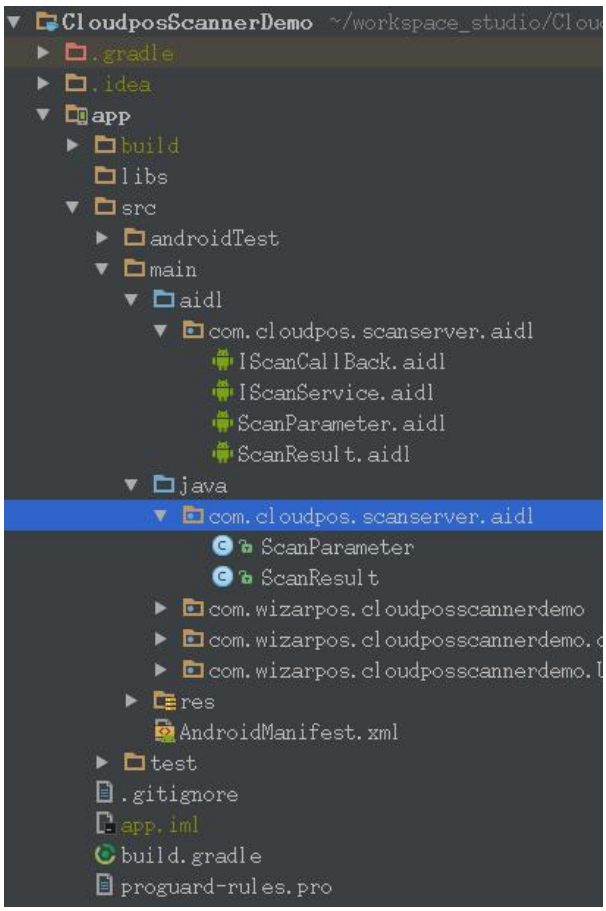
In Eclipse, put all the files in to the package: com.cloudpos.scanserver.aidl.

In Android Studio, firstly put the AIDL files in the package(com.cloudpos. scanserver.aidl) , the package is in folder (src—main—aildl), if the package and the folders are not existed, please make them first.

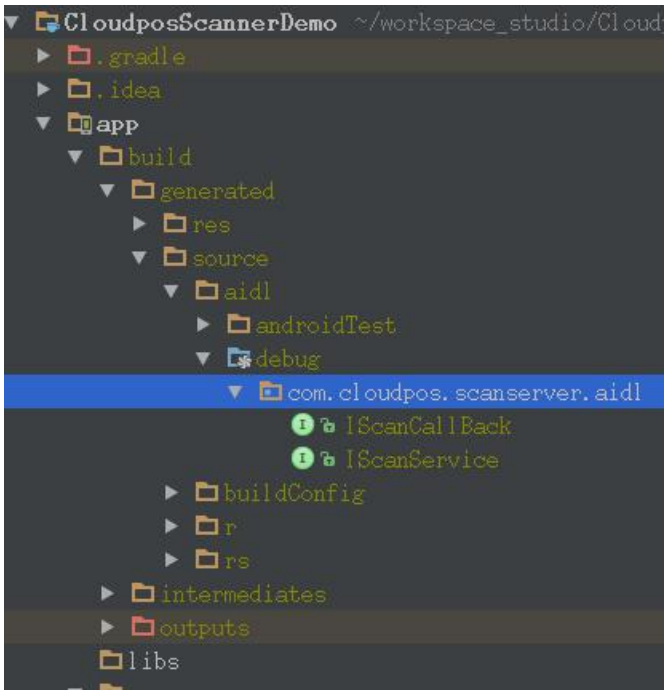


And then, put the two java files in the package(com.cloudpos.scanserver.aidl), the package is in

folder(src—main--java), if the package and the folders are not existed, please make them first.



clean project, if compiled success in folder: build—generated—source—aidl—debug, then the app can call the scanner service successfully.



4.2 Bind service

We have provided the API for bind service. Put the interface and the implement in any package. Get from \source\aidlControl from barcode SDK package.

1) Use the follow method to bind service:

```
AidlController.getInstance().startScanService(this, this);
```

2) Implement the interface IAIDLListener. Get the scanner service, use the service to call the functions.

```
private IScannService scanService; //Scanner service
private ServiceConnection scanConn;

@Override
public void serviceConnected(Object objService, ServiceConnection connection) {
    if(objService instanceof IScannService){
        scanService = (IScannService) objService;
        scanConn = connection;
    }
}
```

Use this function to unbind service.

```
if(scanService != null){
    this.unbindService(scanConn);
    scanService = null;
    scanConn = null;
}
```

Please see also the demo project for detail.

5.Appendix

5.1 Barcode Format

Example:

```
ScanParameter parameter = new ScanParameter();
parameter.set(ScanParameter.KEY_DECODEFORMAT, " SymbologyType_Aztec, ITF ");
```

compound barcode format	
BARCODE_ALL	Includes all the barcodes in the table
BARCODE_1D	Includes all the 1D barcodes in the table
BARCODE_2D	Includes all the 2D barcodes in the table
Barcode format	
AZTEC	2D barcode
DATAMATRIX	2D barcode
QR	2D barcode
MAXICODE	2D barcode
PDF417	2D barcode
CODABAR	1D barcode
CODE39	1D barcode
CODE93	1D barcode
CODE128	1D barcode
EAN8	1D barcode
EAN13	1D barcode
ITF	1Dbarcode(Interleaved Two of Five)
RSS_14	1D barcode
RSS_EXPANDED	1D barcode
UPCA	1D barcode
UPCE	1D barcode
CODE11	1D barcode