# Q1 & Q2 Mobile POS
# Printer SDK

# 1 Print by AIDL

It's the way of AIDL to connect the printer. Android Interface Definition language (AIDL) is an interface for Android internal process communication, through which we can define the interface for communication between processes. AIDL provides packaged commonly used printing commands to facilitate rapid access to printer services by developers。

## 1.1 The use of AIDL

1.To add the AIDL into the developer′s programming project：

1)SDK：com.iposprinter.iposprinterservice

2)File：There are two files in the aidl.rar: IPosPrinterService.aidl & IPosPrinterCallback.aidl

2. The command for connecting to the printer: ServiceConnection

```
private ServiceConnection connectService = new
  ServiceConnection() {
@Override
public void onServiceConnected(ComponentName name, IBinder
  service) {
        mIPosPrinterService =
  IPosPrinterService.Stub.asInterface(service);
        setButtonEnable(true);
}

@Override
public void onServiceDisconnected(ComponentName name) {
        mIPosPrinterService = null;
}
};
```

3. Invoke ApplicationContext.bindService(), and transmit in ServiceConnection

Note：Bindservice is a non blocking call, it means that the call is not immediately bound after completion, Standard must be serviceConnected

```
  //Binding Service
 Intent intent=new Intent();
intent.setPackage("com.iposprinter.iposprinterservice ");
intent.setAction("com.iposprinter.iposprinterservice.IPosPrintS ervice");
bindService(intent, connectService, Context.BIND_AUTO_CREATE);
```

4. Once you bind the service, you can call various interfaces from the IPosPrintService for printing.

## 1.2 AIDL Reference:

1. Printer Initialization

| Function | printerInit |
|---|---|
| Description | The printer power on and initializes the default settings |
| Return Value | void |
| Note | Before use, please determine the current status of the printer. If you are in the PRINTER_IS_BUSY state, please wait a second |

2. Printer Status Checking

| Function | getPrinterStatus |
|---|---|
| Description | Get the current Printer Status |
| Return Value | Printer Status：<br>0:PRINTER_NORMAL<br>The printer is in free and normal. You can start a new print<br>1:PRINTER_PAPERLESS<br>Out of paper. If the current printing is not complete, please re-print it again after the new paper roll input.<br>2:PRINTER_THP_HIGH_TEMPERATURE<br>Printing head overheat, the current printing stop and will be continue after cooling.<br>3:PRINTER_MOTOR_HIGH_TEMPERATURE<br>Printer motor overheat, current printing stop. You need to initialize the printer after cooling.<br>4:PRINTER_IS_BUSY<br>Printer is printing something now.<br>5:PRINTE_ERROR_UNKNOWN<br>Unknown error occurred. |
| Note | Please check the status before printing |

## 3. Darkness Setting

| | |
|---|---|
| Function | setPrinterPrintDepth |
| Description | Setting the Darkness of the printer |
| | depth：The level of darkness, between 1 – 10, standard value 6. |
| Return Value | void |
| Note | |

## 4. Font Setting

| | |
|---|---|
| Function | setPrinterPrintFontType |
| Description | Set font type of the printer |
| | typeface：Name of Character |
| Return Value | void |
| Note | |

## 5. Font Size Setting

| | |
|---|---|
| Function | setPrinterPrintFontSize |
| Description | Set font size of the printer |
| | fontsize：Supports 16、24、32、48 Pixel, Standard value is 24 |
| Return Value | void |
| Note | |

## 6. Printer Align Setting

| | |
|---|---|
| Function | setPrinterPrintAlignment |
| Description | Printer Align Setting |
| | alignment：0-- Align left, 1-- Center, 2-- Align Right |
| Return Value | void |
| Note | |

## 7. Feed Paper

| | |
|---|---|
| Function | printerFeedLines |
| Description | Paper Feed |
| | lines：The number of feed line |
| Return Value | void |
| Note | |

## 8. Print Blank Lines

| | |
|---|---|
| Function | printBlankLines |
| Description | Print blank lines<br>After the previous printing, newlines and print blank lines. (now the data sent to printer is 0x00) |
| | lines：Number of blank lines (Max. 100)<br>height：The height of the blank lines (Unit：Pixel) |
| Return Value | void |
| Note | Suggest to use this command to have blank between lines, do no recommend use printerFeedLines |

## 9. Print Characters

| | |
|---|---|
| Function | printText |
| Description | If the text width is full, printer will auto linefeed and continue printing |
| | text：The characters that need to be printed |
| Return Value | void |
| Note | |

## 10. Print the text that specifies the type and size of the font

| | |
|---|---|
| Function | printSpecifiedTypeText |
| Description | If the text width is full, printer will auto linefeed and continue printing |
| | text：The Characters that need to be printed<br>typeface: Font name<br>fontsize: Font size. Supports 16, 24, 32, 48 |
| Return Value | void |
| Note | |

## 11． Print sheet text

| | |
|---|---|
| Function | printColumnsText |
| Description | To print a row of a sheet, you can specify column widths and column alignment |
| | colsTextArr： Array of text strings<br>colsWidthArr: Column width<br>Total width cannot be larger than ((384 / fontsize) << 1)-（column+1）<br>colsAlign: Column alignment (0=left, 1=center, 2=right)<br>isContinuousPrint：Continue printing form?<br>1: Continue printing |

| | |
|---|---|
| | 0: Do not continue |
| Return Value | void |
| Note | The array length of the three parameters should be consistent. If the content width of colsTextArr[i] is larger than colsWidthArr[i], the text will linefeed |

## 12. Print Image

| | |
|---|---|
| Function | printBitmap |
| Description | Print bmp file |
| | alignment： 0=left, 1=center, 2=right<br>bitmapSize: Bitmap size between 1 -- 8, out of range it would be return to defaults, 6<br>Unit：48bit<br>mBitmap: Bitmap Object (max. width 384 pixels) |
| Return Value | void |
| Note | |

## 13. Print Barcode

| | |
|---|---|
| Function | printBarCode |
| Description | data： Content of the barcode<br>symbology: Barcode type<br>0 -- UPC-A<br>1 -- UPC-E<br>2 -- JAN13(EAN13)<br>3 -- JAN8(EAN8)<br>4 -- CODE39<br>5 -- ITF<br>6 -- CODABAR<br>7 -- CODE93<br>8 -- CODE128<br>height: Height of the barcode, from 1 -- 8, Defaults 3, Each unit high 48 pixels<br>width： Width of the barcode, from 1 -- 8, Defaults 6, Each unit wide 48 pixels<br>textposition：Position of the Characters<br>0- Don’t print characters<br>1- Characters at the above of barcode<br>2- Characters at the bottom of barcode<br>3- Characters print at the above & bottom of the barcode |
| Return Value | Void |
| Note | |

## 14. Print 2D Code

| | |
|---|---|
| Function | printQRCode |
| Description | Data: Date of the QR Code<br>Modulesize: Size of the QR Code (unit: Pixel, from 1 – 8) , defaults 6 |
| Return Value | void |
| Note | |

## 15. Print Byte Data

| | |
|---|---|
| Function | printRawData |
| Description | Print raw byte data |
| | rawPrintData：Byte data |
| Return Value | void |
| Note | |

## 16. ESC/POS

| | |
|---|---|
| Function | sendCMDRawData |
| Description | To control the printer by ESC/POS command list |
| | data：ESC/POS Command |
| Return Value | void |
| Note | |

## 17. Implement Setting of the Printer

| | |
|---|---|
| Function | printerPerformPrint |
| Description | To active all setting like font size, align, darkness…. |
| Return Value | Void |
| Note | After completed the printing setting like font size, align…, you need to run this command to implement the printer. But before the execution, please check the printer status, if the printer is in PRINTER_NORMAL, this command works effective, otherwise this command do not run. |

# 2. Print by Bluetooth

## 2.1 Open the Bluetooth Printer

When switch on the Bluetooth, you will find that there is a Matched Bluetooth Device “IposPrinter” appeared. It’s a virtual Bluetooth printer created by Systems and connect it to the printer that built-in the machine. This Bluetooth printer supports ESC/POS command.

## 2.2 How to work with the Bluetooth Printer

1. Switch on the Bluetooth and connect with the virtual Bluetooth Printer
2. Send the ESC/POS command and contents to the “IposPrinter” through Bluetooth.
3. Contents print out and mission accomplished.

P.S: There is a class “BluetoothUtil” in the Demo application. Before you use this demo to do testing with the printer, please press “Load in Driver for Bluetooth printer” first.

**BluetoothUtil, the standard Bluetooth connection application:**

```
public class BluetoothUtil{
    private static final String TAG = "BluetoothUtil";
    private static final UUID IPOSPRINTER_UUID =
UUID.fromString("00001101-0000-1000-8000-00805F9B34FB");
    private static final String IPosPrinter_Address = "00:AA:11:BB:22:CC";
    public static BluetoothAdapter getBluetoothAdapter(){
    return BluetoothAdapter.getDefaultAdapter();
    }
    public static BluetoothDevice getIposPrinterDevice(BluetoothAdapter
mBluetoothAdapter){
    BluetoothDevice IPosPrinter_device = null;
    Set<BluetoothDevice> devices =
mBluetoothAdapter.getBondedDevices();
    for (BluetoothDevice device : devices){
    if(device.getAddress().equals(IPosPrinter_Address))
              {
               IPosPrinter_device =device;
               break;
               }
    } return IPosPrinter_device;
    }
    public static BluetoothSocket getSocket(BluetoothDevice mDevice)
throws IOException
    {
    BluetoothSocket socket =
mDevice.createRfcommSocketToServiceRecord(IPOSPRINTER_UUID);
    socket.connect();
    return socket;
    }
}
```

**Get the Bluetooth printer and connect to it:**

```
 // 1: Get BluetoothAdapter mBluetoothAdapter =
 BluetoothUtil.getBluetoothAdapter(); if(mBluetoothAdapter ==
 null) { return; } //2: Get bluetoothPrinter Devices
 mBluetoothPrinterDevice =
 BluetoothUtil.getIposPrinterDevice(mBluetoothAdapter);
 if(mBluetoothPrinterDevice == null) { return; }
 //3: Get conect Socket try { socket =
 BluetoothUtil.getSocket(mBluetoothPrinterDevice);
 } catch (IOException e)
 {
   e.printStackTrace();
   return;
 }
```

**Note:**
**You need to add the station of Bluetooth permission in the app before you use the printer.**

```
<manifest>
<uses-permission
android:name="android.permission.BLUETOOTH"></uses-permission>
<uses-permission
android:name="android.permission.BLUETOOTH_ADMIN"></uses-permission>
</manifest>
```

## 3. Status Feedback

### 3.1 Get the status feedback from the Printer

The user needs to set up a broadcast receiver to monitor the printer's current status

```
//Printer in normal & free
private final String PRINTER_NORMAL_ACTION =
"com.iposprinter.iposprinterservice.NORMAL_ACTION";

//Out of paper
private final String   PRINTER_PAPERLESS_ACTION =
" com.iposprinter.iposprinterservice.PAPERLESS_ACTION";

//Paper on the printer
private final String   PRINTER_PAPEREXISTS_ACTION =
"com.iposprinter.iposprinterservice.PAPEREXISTS_ACTION";

//Printing head overheat
private final String   PRINTER_THP_HIGHTEMP_ACTION =
"com.iposprinter.iposprinterservice.THP_HIGHTEMP_ACTION";

//Printing head is normal
private final String   PRINTER_THP_NORMALTEMP_ACTION =
"com.iposprinter.iposprinterservice.THP_NORMALTEMP_ACTION";

//Printing motor overheat
private final String   PRINTER_MOTOR_HIGHTEMP_ACTION =
"com.iposprinter.iposprinterservice.MOTOR_HIGHTEMP_ACTION";

//Printer is busy (Printing)
private final String   PRINTER_BUSY_ACTION =
"com.iposprinter.iposprinterservice.BUSY_ACTION";
```

P.S：To get the status forwardly by user, please use command “getPrinterStatus” and refer to 1.2 AIDL Reference

## 3.2 Feedback of instruction callback

There is two feedback of the instruction callback:

| Function | Feedback | Result |
|---|---|---|
| onRunResult | boolean is Success | True<br>False |
| onReturnString | final String result | True<br>False |

# 4. Print Parameter Reference

## 4.1 Paper

58mm
48m
48mm
384dots

The printer supports paper wide 58mm, with a valid printing width of 48mm, 384 pixels per line.

## 4.2 Printer Resolution

Printer resolution is 205DPI
DPI=384dots/48mm=8dots/1mm=205dots/in=205

## 4.3 Font

Defaults Font size is 24, 24 * 24 for Chinese and 12*24 for English.

## 4.4 2D(QR) Code

To print the QR Code, each CODE should larger than 48 Pixels. (Less than 48 Pixels cannot be analyzed)

## 4.5 Print Image

The Max width of the imange should be 384 Pixels, if the width of the image larger than 384 pixels, please try to reduce.