Android-SDK Development Manual

(V1.2)

Document information

File Name	Android-SDK Printer Developing Manual
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File name	Android-SDK Printer Developing Manual.doc
Summary	This file is for Android-SDK 5.1 version. This version is modified on the basis of SDK5.0 version. It adds TSPL instruction function interface, black mark positioning function interface, color bitmap conversion to gray scale printing function interface etc, which is compatible with version 5.0.

(REVISIONHISTORY)				
Version	Date	Modifier	Reviewers	Summary
1.0	2016-06-22	Fu Daohui	Qin Zhengfeng	Initially created this File
1.1	2016-12-09	Yang Xuezhi		1. Add TSPL instruction label printing method 2. Add the black mark positioning function 3. Add the color bitmap convert to the grayscale print function 4. Modify instruction of sendBytesData method in the document return value to add a -3 5. Serial communication add need to call the specified .so instructions. 6. Add all methods to the hyperlink.

1.2	2017-07-26	Fu Daohui		1. Modify the PDF print in the SDK 2. Optimize the serial failure problem on non-root device 3. Add printed language instruction 4. Optimize the method of printing pictures 5. In the SDK, I added the print line, dotted line method 6. Optimize other known bugs 7. Added a quick reading guide on the document

Content

1.Introduction

Android-SDK5.2 is an Android function interface based on our printer development.This version of the interface has been modified PDF file printing on SDK5.1 basis.Optimize the problem of unroot serial crashes on non-root devices;Added a multi-lingual print description;Optimized CPCL and esc/pos instruction to print image algorithm;Add print line, dotted line command;Other known bugs are optimized to help customers use our printer more easily.Note that this version no longer supports SDK4.0 and earlier versions, compatible with 5.0 and 5.1.If there are any software problems with SDK4.0 and earlier versions, please consult our company before sales.This SDK supports bluetooth, serial port, WIFI, and USB communication.The related class illustrations are below:

Class Name	Discription
PrinterInstance	Printer Core Class
Barcode	Barcode Printing Class
Table	Table Printing Class
CanvasPrint	Canvas Printing Class
BitmapConvertor	Colorful Bitmap Converting Class
PdfContext,CodecDocument,CodecPage	PDF File Printing Related Class
PrinterConstants	Related Constants Class

2. Nouns Explanation

2.1 Nouns Explanation

➢ Printing Width: The maximum horizontal printing range that printer supports, which is decided by printer itself. For example, as for 80mm width printer, the printing width is 72mm(576 dots); while as for 58mm printer, the printing width is 48mm(384 dots).

> Printing Area: Printing area can be set by commands, and it must be less than or equal to printing width;

> Row Height: The height of character row. Row Height = Character Height + Line Space;

> Black Mark Paper: Black mark is black patch pre-printed on the paper. Users can use it to locate printing position;

> Vertical or Horizontal Moving Unit: The default one moving unit is one printing dot. The horizontal distance is 1/8mm and the vertical distance is 1/8mm;

2.2 Relevant Knowledge

> Western Characters Printing: Western characters we mentioned including ASCII character and CodePage. The ASCII character range is 0x20~0x7F, the Codepage range is 0x80~0xFF. Western languages(such as German and Spanish) have their own singel-byte codepages. Because there is overlapping section for Codepage codes and Chinese characters codes, pls print Codepage under Western Characters Printing mode. Common Western Characters Font are: Font A: 12x24(dots); Font B: 9x17(dots);

> Chinese Printing: The Chinese Characters we mentioned including simplified Chinese and traditional Chinese. The common simplified Chinese characters set we use are GB2312 and GB18030, and the common traditional Chinese characters set we use is BIG5. Common Chinese Characters Font: 24x24 (dots).

> Twice Height Printing: In this printing mode, the height of character is twice of normal height of character;

> Twice Width Printing: In this printing mode, the width of character is twice of normal width of character;

2.3 This document speed guide

> Because the printer model is not the same, the instruction is not the same, customer development personnel familiar with the printer have different degree, in order to let the customer developers can more quickly locate to call API method, the following text description will help you.

> No matter what you do, as long as you need under the android via bluetooth, USB, WIFI (or cable), a serial port connection to print, all can read 3.1.1 and 3.1.2 section query entity class for printers, open communication port, reading and writing data, close com API, such as additional 3.1.9 provides bluetooth for example, to initialize the printer, connect printers, print data, close the API calls such as application examples.

> If you want to print a small ticket on ordinary heat sensitive paper, you can read the

contents of section 3.1.4.This section API provides printing text, printing one-dimensional code, qr code, printing images and other relevant methods.

➢ If you want to print the label, and your printer supports CPCL instructions, you can read 3.1.5.This section provides methods for printing lines, rectangles, text, and areas to print text, bar codes, etc.

➢ If you want to print the tag, and your printer supports TSPL instructions, you can read the 3.1.6 section.This section provides a similar approach to 3.1.5, except in a different way.

➢ If you have the need to query printer status, read the 3.1.8 section.Another 3.6 section provides a program for PDF file printing.In fact, you may want to print more rich format data, and the canvas printing method may be suitable for you, please read 3.4.Cut paper, control the buzzer, look for black label, read 3.1.7 section.

Note: the printer cannot print the data of the webpage directly, nor can it identify the rich and colorful format in the webpage.The average customer can convert the web data to bitmap, and print out the image by calling the printImage (bitmap bitmap, PAlign alignType, int left, Boolean isCompressed).

3. Related Class Explanation

3.1. Printer Core Class (PrinterInstance)

Class Explanation: It is the core class for printing, which provide getting printer instance method and printer communication related method, printing data related method, setting printer related method, printing label related method, getting printer status related method and control printer hardware related method.

Get Printer Instance Class
Printer Communication Related Method
Setting Printer Method
Printing Content Related Method
CPCL Command Label Printing Method
TSPL Command Label Printing Method
Control Printer Hardware Related Method
Get Printer Status Related Method

Connect Printing Invocation Example

3.1.1 Get Printer Instance Class

Method name	Description
getPrinterInstance	Getting Bluetooth Printer Instance Class
getPrinterInstance	Getting USB Printer Instance Class
getPrinterInstance	Getting WiFi Printer Instance Class
getPrinterInstance	Getting Serial Printer Instance Class

➢ Getting Bluetooth Printer Instance Class object

➢ Parameter:

   bthDevice BluetoothDevice Device Object

   handler Handler object can be used to received message of connecting

   successfully or not

   Returned Value: PrinterInstance Instance Class

➢ Getting USB Printer Instance Class

   PrinterInstance static synchronized getPrinterInstance (Context context,UsbDevice

   usbDevice, Handler handler)

   Parameter:

   context context object

   usbDevice UsbDevice USB device object

   handler Handler object can be used to received message of connecting

   successfully or not

   Returned Value: PrinterInstance Instance Class

➢ Getting WiFi Printer Instance Class

   PrinterInstance static synchronized getPrinterInstance (String ipAddress,int

   portNumber, Handler handler)

   PrinterInstance static synchronized getPrinterInstance(String ipAddress,int

portNumber, Handler handler)

   Parameter:

   ipAddress ip address character string of dotted decimal printer, such as

   "192.168.0.100"

   portNumber port number of printer, which is 9100 by default

   handler Handler object can be used to received message of connecting successfully

or not

   Returned Value: PrinterInstance Instance Class

➤ Getting Serial Printer Instance Class

PrinterInstance static synchronized getPrinterInstance(File device, int baudrate, in flags, Handler handler)

Parameter

device   Serial device object

Baudrate Baudrate of serial port, specific baudrate are subject to self test of printer.

flags   The mark position of serial port. Default is 0

handler Handler object can be used to received message of connecting successfully or not

Returned Value:PrinterInstance   Instance Class

Note: The handler parameter of all above construction methods are used to received connect states of printer, whose corresponding states are as below:

Note:

☞If use serial port, .so library file and PrintDemo/ libs/ armeabi /libserial_port.so files must be added in demo.

☞All paremeter of construct method are use to receive the connection method of printer, which are below:

PrinterConstants.Connect.SUCCESS;   Connecting successfully

PrinterConstants.Connect.FAILED;   Connecting unsuccessfully

PrinterConstants.Connect.CLOSED;   Close connecting

3.1.2 Printer Communication Related Method

Method Name	Description
OpenConnection	Connecting To Printer
closeConnection	Close the Connection To Printer
sendBytesData	Sending Hexadecimal Data To Printer
read	Read data returned from printer

➤ Connecting To Printer

Method Name:public boolean openConnection()

Method Description: Connecting printer, handler object can be used to received message of connecting successful or not

Parameter: None

Returned Value:true　　　　Connecting successfully

　　　　　　　　　　false　　Connecting unsuccessfully

➢ Close the Connection To Printer

Method Name: public void closeConnection()

Method Description: Close the connection to printer, and handler object

can be used to received message of connection closed

Parameter: None

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Returned Value: None

➢ Sending Hexadecimal Data To Printer

Method Name: public int sendBytesData(byte[] srcData)

Method Description: Sending hexadecimal data to printer. If the SDK

haven't provided function wanted, please refer to instruction manual to

use this method to send instruction to printer directly.

For example: If the command for setting printing position in the center

checked on the manual is: 0x1B,0x61,0x01, the code can be written as

below to achieve setting printing position in the center.

byte[] command = new byte[3];

command[0] = 0x1B;

command[1] = 0x61;

command[2] = 0x01;

sendByteData (command);

Parameter: srcData byte array

Returned Value: Bytes numbers which are sent to printer successfully;

otherwise the returned value is negative. -1 means no initialize printing, -2

means srcData is blank or srcData doesn't have any data.

➢ Read data returned from printer

Method Name: public int read(byte[] buffer)

Method Description: Read data returned from printer

Parameter: Used to receive the array which read bytes

Returned Value: Bytes numbers which are read successfully; otherwise

the returned value is negative. -1 means no initialize printing, -2 means

buffer is blank or the length of buffer array is 0.

3.1.3 Setting Printer Method

Note: the setting method is invalid in the CPCL commands program of label printer.

Method Name	Description
initPrinter	Initialize Printer
setFont	Setting Printer Font
setPrinter	Printer Printing Setting
setLeftMargin	Setting dots numbers which are away from left margin

> Initialize Printer

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Method Name: public void initPrinter()

Method Description: Initialize Printer

Parameter: None

Returned Value: None

> Setting Printer Font

Method Name: public void setFont(int mCharacterType, int mWidth, int mHeight, int mBold,int mUnderline)

Method Description: Setting printer printing font, including setting boldface, twice height,twice width, underline, standard ASCII Font A(12x24), compressed ASCII Font B(9x17)

Parameter:

mCharacterType: 0 means 12x24 font size, 1 means 9x16 font size, The set font type is temporary effective. Printer do not save this setting, means invalid when printer reset. Need to send 1 do manual setting if printed 9*16 font.

mWidth: twice width, the range is 0~7

mHeight: twice height, the range is 0~7

mBold: 0 means not bold, 1 means boldface

mUnderline: 0 means no underline, 1 means having underline

Returned Value: None

> Printer Printing Setting

Method Name: public void setPrinter(int command, int value)

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Method Description: Setting printer, including printing and feeding paper for n dot line; printing and feeding paper for n character line; setting character align mode, align left, center, align right.

Parameter: command

PrinterConstants.Command.PRINT_AND_WAKE_PAPER_BY_LNCH

Printing and feeding value dot line

PrinterConstants.Command. PRINT_AND_WAKE_PAPER_BY_LINE

Printing and feeding value character line

PrinterConstants.Command.ALIGN Setting the position of printing content,

Value can be used to appoint specific position of setting, which can be:

PrinterConstants.Command.ALIGN_LEFT;

PrinterConstants.Command.ALIGN_CENTER;

PrinterConstants.Command.ALIGN_RIGHT

E.g.1：Set the print text to center

mPrinter.setPrinter(Command.**ALIGN**, Command.**ALIGN_CENTER**);

mPrinter.printText("hello world!\n");

E.g.2：Set the print 1D Bar code center

mPrinter.setPrinter(Command.ALIGN, Command.ALIGN_CENTER);

Barcode barcode1 = new Barcode(BarcodeType.CODE128, 2, 150, 2,"123456");

mPrinter.printBarCode(barcode1);

E.g.3：Set the print 2D Bar code center

PrinterInstance.mPrinter.setPrinter(Command.ALIGN, Command.ALIGN_CENTER);

Barcode barcode2 = new Barcode(BarcodeType.QRCODE, 2, 3, 6,"123456");

PrinterInstance.mPrinter.printBarCode(barcode2);

Note:Above for the print image printImage method is invalid

➢ Setting dots numbers which are away from left margin

Method Name:public void setLeftMargin(in inchs)

Method Description: Setting inchs number which are away from left

margin

Parameter:inchs inchs numbers away from left margin

Returned Value: None

E.g. 1：setLeftMargin8 inchs

mPrinter.setLeftMargin(8);

mPrinter.printText("hello world!\n");

This method is valid for printing 1D Bar code, 2D Bar code, and is not valid for print image printImage

3.1.4 ESC/POS instruction print related methods

Note: the setting method is unavailable in the CPCL commands program of label printer.

Method Name	Description
printText	Printing Characters
printImage	Print Image
printColorImg2Gray	Print Grayscale color image
printTable	Print Table
printBarCode	Print Barcode
printhorizontalLine	Print line ，dotted line

➢   Print text

Method Name: public void printText(String content)

Method Description: Print text

Parameter: content Text content needs to be printed

Returned Value: None

Note: Printing data will buffer until data is enough for a line or add "\n"

behind content,that is (printText("hello world\r\n")), then can print content

data.

➢   Print Black and white binary picture

Method name: public void printImage(Bitmap bitmap, PAlign alignType,int

left，boolean isCompressed)

Method Description: From the left position on the left margin begin to print

picture, and please note the printer can only print binary image. If colored bitmap sent,

printer will still print black and white binary bitmap, and will cause the serious picture

distortion. Bitmap Convertor class provides the method to transfer the colored picture

into binary picture, please refer to BitmapConvertor class introduction.

Parameter: bitmap monochrome bitmap will be printed, whose color depth is 1.

alignType: the position of printing picture, PAlign.START means the

position is on the left, PAlign.CENTER means the position is on the center,

PAlign.END means the position is on the right, PAlign.NONE means not appoint the

printing position. Please note that when the parameter is PAlign. NONE, users can

adjust the distance of pictures to left margin according to setting left parameter, other

parameter will be invalid when sent into left. When setting the printing position on the

center, on the right and on the left, pleas assign the printing width of printer before

use above method, that is Printer Constants paper width=384(for 58mm paper, 576

for 80mm paper, 724 for 100mm paper).

Left: When the alignType is PAlign.NONE, sending parameter into Left can refined adjust the position of printing pictures away from the left margin. When the alignType is not PAlign.NONE, the parameter is invalid and left must be multiple of 8.

isCompressed: It means whether using compression algorithm or not.

Shows true means using compression algorithm, shows false means not Android-SDK Printer Developing Manual using compression algorithm. Using compression algorithm can improve the printing rate when printer print pictures. Please note using compress mode needs to use customized printer, since normal printer don't support this kind of function.

E.g.1：The following description sets the print picture center

Print paper width：58mm，horizontal effective print points 384 points

PrinterConstants.paperWidth = 384；

mPrinter.printImage(bmp, PAlign.Command.ALIGN_CENTER, 0, false);

E.g.2：The following description prints the picture from the left side 24 points

Print paper width：58mm，horizontal effective print points 384 points

PrinterConstants.paperWidth = 384；

mPrinter.printImage(bmp, PAlign.NONE, 24, false);

  Returned value: Null

➢   Print Grayscale color image

Method Name: public void printColorImg2Gray (Bitmap bitmap, PAlign alignType,int left，boolean isCompressed)

Method Description: From the left position on the left margin begin to print the grayscale color image

Parameter:bitmap   color bitmap will be printed

alignType:the position of printing picture,PAlign.START means the position is on the left,PAlign.CENTER means the position is on the center,PAlign.END means the position is on the right,PAlign.NONE means not appoint the printing position. Please note that when the parameter is PAlign.NONE, users can adjust the distance of pictures to left margin according to setting left parameter, other parameter will be null when sent into left. When setting the printing position on the center, on the right and on the left, pleas assign the printing width of printer before use above method, that is Printer Constants paper width=384(for 58mm paper, 576 for 80mm paper, 724 for 100mm paper)

Left : When the align Type is PAign.NONE,sending parameter into left can refined adjust the position of printing pictures away from the left margin. When the align type is not PAlign. NONE, the parameter is null and left must be multiple of 8.

IsCompressed: It means whether using compression algorithm or not.

True means using compression algorithm, False means not using. Using compression algorithm can improve the printing rate when printer print pictures.

Note: using compress mode needs to use customized printer, since normal printer don't support this kind function .

Returned Value: None

➢ Printing Table

Method Explanation: public void printTable(Table table)

Method Description :Printing table

Parameter: instantiation object of table .Please refer to Table Class 3.34

Returned Value :None

➢ Printing Barcode

Method Explanation:public void printBarCode(Barcode barcode)

Method Description :print 1D , 2D barcode

Parameter: instantiation object of barcode ,Please refer to Barcode Class 3..2.2 for specific instantiation example .

Returned Value: None

➢ Printing Straight line ,dotted line

Method Explanation:public int printhorizontalLine(int lineLength, int lineWith, boolean isSolidline, int interval)

➢ Method Description :Printing Straight line ,dotted line

Parameter:lineLength　　 Length of Straight line

　　　　　 lineWith　　 Width of Straight line

　　　　　 isSolidline　　 true,Straight line，false，dotted line

　　　　　 interval　　　　 Dotted line spacing, optional parameters are 4,8. The larger the value, the larger the spacing

Returned Value: None

3.1.5 CPCL Command Label Printing Related Method

Note: below methods are apply for label printer ,which support standard CPCL command set.

Method	Description
pageSetup	Setting the page width and page height of printing area
drawLine	to print straight line
drawBorder	To print border
drawText	To print text
drawText	Print text in area
drawBarCode	Print 1D barcode
drawBarCode	Print 1D barcode in area
drawQrCode	Print 2D barcode
drawGraphic	Print bitmap
drawGraphic	Print bitmap in area
print	To print

➢ Setting the page width and page height of printing area

Method name:public void pageSetup(LablePaperType paperWidth,int pageWidth, int pageHeight)

Method description :Setting the page width and page height of printing area

Parameter:

paperWidth Set paper type, LablePaperType.Size_80mm，80mmpaper;

LablePaperType.Size_58mm，58mmpaper;

LablePaperType.Size_100mm，100mmpaper;

pageWidth Page Width

pageHeight Page Width

Returned Value: None

➢ Print straight line

Method name: public void drawLine(int lineWidth, int startX, int startY, int endX,int endY,boolean isSolidLine)

Method description :to print straight line

Parameter:

lineWidth   width of the printing line

startX   coordinate X of the starting position

startY   coordinate Y of the starting position

endX   coordinate X of the ending position

startY   coordinate Yof the ending position

isSolidLinetrue   solid line ;false   dotted line

Returned value :Null

➢   To print border

Method description:public void drawBorder(int lineWidth, int top_left_x, int top_left_y,int bottom_right_x, int bottom_right_y)

Method description :to print border

Parameter :

lineWidth   Width of the printing line

top_left_x   Coordinate X of the left border position

top_left_y   Coordinate Y of the left border position

bottom_right_x   border bottom right position coordinate X

bottom_right_y   border bottom right position coordinate Y

Returned value:Null

➢   Print text

Method description:public void drawText(int text_x, int text_y, String text, LableFontSize fontSize,PRotate rotate, int bold, int reverse, int underline)

Method description: To print text at point(text_x,text_y)

Parameter description:

text_x   Coordinate X of printing started point

text_y   Coordinate Y of printing started point

text   Text content to be printed

fontSize   font size ,support font as follow:

     LableFontSize.Size_16   16dots

     LableFontSize.Size_24   24dots

     LableFontSize.Size_32   32dots

     LableFontSize.Size_48   48dots

     LableFontSize.Size_64   64dots

     LableFontSize.Size_72   72dots

     LableFontSize.Size_96   96dots

rotate   Rotation angle

     PRotate.Rotate_0   Rotation 0 degrees

     PRotate.Rotate_90   Rotation 90 degrees

PRotate.Rotate_180   Rotation 180 degrees

PRotate.Rotate_270   Rotation 270degrees

bold   Bold or not   1 Bold   0 Not bold

reverse   reverse or not   1 reverse   0 not reverse

underline   underline or not   1underline   0 not underline

Returned value: Null

➢ Print text in area

Method instruction :public void drawText(int area_start_x, int area_start_y, int area_end_x,int area_end_y, PAlign xAlign, PAlign yAlign, String text,LableFontSize fontSize, int bold, int reverse, int underline, int deleteline,PRotate rotate)

Method description:to print text in point area

Parameter:

area_start_x   coordinate X of the rectangular region top left corner

area_start_y   coordinate Y of the rectangular region top left corner

area_end_x   coordinate X of the rectangular region right bottom corner

area_end_y   coordinate Y of the rectangular region right bottom corner

xAlign   Horizontal position,it can be left align PAlin.START; center PAlign.CENTER ;right align PAlign.END

yAlign   Vertical position,it can be upper align PAlin.START; center PAlign.CENTER ;bottom align PAlign.END

fontSize   refer to above method description to drawText:

bold   Bold or not   1 Bold   0 Not bold

reverse   reverse or not   1 reverse   0 not reverse

underline   underline or not   1underline   0 not underline

deleteline   deleteline or not 1deleteline 0 not deleteline

rotate   rotation angle ,pls refer to above method.

Returned value:Null

➢ Print 1D barcode in area

Method description: drawBarCode(int area_start_x, int area_start_y, int area_end_x,int area_end_y, PAlign xAlign, PAlign yAlign, int start_x,int

start_y, String text, PBarcodeType type, int linewidth,int height, PRotate rotate)

Method description: to Print 1D barcode in area

Parameter:

area_start_x   coordinate X of the rectangular region top left corner

area_start_y   coordinate Y of the rectangular region top left corner

area_end_x   coordinate X of the rectangular region right bottom corner

area_end_y   coordinate Y of the rectangular region right bottom corner

xAlign   Horizontal position,it can be left align PAlin.START;
center PAlign.CENTER ;right align PAlign.END

yAlign   Vertical position,it can be upper align PAlin.START;
center PAlign.CENTER ;bottom align PAlign.END

start_x   X coordinate of the bar code starting position in the area

start_y   Ycoordinate of the bar code starting position in the area

text   The barcode data content to be printed

type   1D barcode type: supported type as follow:
PBarcodeType.CODE128,PBarcodeType. JAN3_EAN13,PBarcodeType.
JAN8_EAN8, PBarcodeType. CODE93,PBarcodeType. JAN3_EAN13,PBarcodeType.
UPCAPBarcodeType. ITF, PBarcodeType. UPC_E

linewidth   Barcode line width

height   Height of barcode

rotate   Rotation angle of
barcode ,i.e:PRotate.Rotate_0,PRotate.Rotate_90,PRotate.Rotate_180,PRotate.Rotate_270

Returned value:Null

➢   Print 2D barcode

Method instruction: public void drawQrCode(int start_x, int start_y, String text, PRotate rotate, int ver, int lel)

Method description: to print 2D barcode

Parameter:

start_x   2D barcode starting position X

start_y   2D barcode starting position Y

text   Content data of 2D barcode

rotate   same rotation angel with 1D barcode

ver   magnification times of QrCode is(1-6),six by default

lel   Error correction level ,refer to the commands manual for details

 0,Error correction level L;1,Error correction level M; 2,Error correction level Q,3,

Error correction level H

Returned value:Null

➢   To print bitmap

Method instruction: public void drawGraphic(int start_x, int start_y, int

bmp_size_x,

int bmp_size_y, Bitmap bmp)

Method description: Print bitmap in the specified location

Parameter description:

start_x   coordinate X of the printed bitmap location

start_y   coordinate Y of the printed bitmap location

bmp_size_x   bitmap Width

bmp_size_ybitmap Height

bmp   bitmap object

➢   To print bitmap in area

Method instruction: public void drawGraphic(int area_start_x, int area_start_y,

int area_end_x,int area_end_y, PAlign xAlign, PAlign yAlign, int

bmp_size_x,int bmp_size_y, Bitmap bmp)

Method description: Print bitmap in area

Parameter:

area_start_x   coordinate X of the rectangular region top left corner

area_start_y   coordinate Y of the rectangular region top left corner

area_end_x   coordinate X of the rectangular region right bottom corner

area_end_y   coordinate Y of the rectangular region right bottom corner

xAlign   Horizontal position,it can be left align PAlin.START;

                  center PAlign.CENTER ;right align PAlign.END

yAlign   Vertical position,it can be upper align PAlin.START;

                  center PAlign.CENTER ;bottom align PAlign.END

bmp_size_x   bitmap Width

bmp_size_ybitmap Height

bmp   bitmap object

Returned value:Null

➢   To Print

Method instruction: public void print(PRotate rotate,int skip)

Method description: to print label, will not print immediately according to the previous order to print text or straight line,until this method is called .

Parameter description:

rotate 0: to print normally, no rotation 1: to print after the entire page is rotated clockwise 180degrees.

Skip: 0: after ending the printing ,directly stop without located.

1: located at label gap after ending the printing .stop after feeding paper at max.30mm if no gap .

Returned value:Null

3.1.6 TSPL Command Label Printing Related Method

Note: Below methods are apply for label printer ,which support standard TSPL command set.

Method	Description
pageSetupTSPL	Set page width and height
drawLineTSPL	Draw line
drawBorderTSPL	To print border
drawTextTSPL	To print text
drawTextTSPL	To print text in area
drawBarCodeTSPL	To print 1D barcode
draw2DBarCodeTSPL	To print 2D barcode(TL21type not support DMATRIX command)
drawBitmapTSPL	To print bitmap
drawBitmapTSPL	To print bitmap in area
printTSPL	Print images content in buffer
getPrinterStatusTSPL	To get printer status
setCharsetNameTSPL	Set the character set encoding format
setPaperbackOrPaperFeedTSPL	Control the paper feeding or back
reverseAreaTSPL	reverse Print in area
eraseAreaTSPL	Clear image buffer data
setPrinterTSPL	Setting printer related function(TL21printer not support SPEED, BLINE, SHIFT, REPRINT command, TL51not support PEEL command)

openCashBoxTSPL	Open cash drawer
getPrinterNameTSPL	Checking the printer model
setGAPTSPL	setting the vertical spacing between labels
selectCodePageTSPL	select codePage
selectCountryTSPL	Select International character set(TL21model not support this method)
beepTSPL	Control buzzer beep one sound
downloadBitmap2PrinterTSPL	Download bitmap to printer(TL21model not support this method)
putBitmapTSPL	Put downloaded bitmap into printer buffer(TL21does not support shi method)
printSelfTestTSPL	Print selftest paper(TL21does not support this method)
setLabelReferenceTSPL	Set reference origin of the label content
sendStrToPrinterTSPL	Send string in command format to printer(TL21does not support SET COUNTER Commands)

All exports below are made by throwing the abnormal way. The main exceptions are as follows:

Write exception   WriteException

Read exception   ReadException

PrinterPort null exception. PrinterPortNullException

Parameter error exception   ParameterErrorException

➢ Set page width and height
   Method instruction: public void pageSetupTSPL(int paperSizeType, int pageWith, int pageHeight)
   throws WriteException ,PrinterPorNullException, ParameterErrorException
   Method description: Set page width and page height, users pass specified value to paperSizeType based on paper width 2 inch, 3 inch or 4 inch, The code maintains a static variable based on the paperSizeType size, when printing line, the border need to judge whether exceed paper width according to passed coordinate and paperSizeType.

Parameter description:

paperSizeType Paper size type

0 means choosing 2 inch printed paper (20mm~56mm)

1 means choosing 3 inch printed paper (20mm~80mm)

2 means choosing 4 inch printed paper (20mm~108mm)

pageWidth Page width, i.e. Printed content area width(dot), will print error if beyond area width

pageHeight Page height, i.e printed content area height(dot), will print error if beyond area height;

Returned value: Null

➢ Draw line

public void drawLineTSPL(int startX, int startY, int lineLength, int lineWidth) throws WriteException, PrinterPortNullException, PrinterPortNullException, Exception

public void drawLineTSPL(int startX, int startY, int lineLength, int lineWidth)

throws WriteException, PrinterPortNullException, PrinterPortNullException, Exception

Method description: draw line from specified coordinate

Parameter description:

startX   Starting position on horizontal direction of left corner, in dots(no exceed label width)

startY   Starting position on vertical direction of left corner, in dots(no exceed label height)

lineHeight, in dots

lineWidth, in dots

Returned value: Null

➢ To print border

public void drawBorderTSPL(int lineWidth, int top_left_x, int top_left_y, int bottom_right_x, int bottom_right_y)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: print border

Parameter description:

lineWidth   line width of border, in dots

top_left_x   X starting position of left up corner in horizontal direction on left corner, in dots

top_left_y   Y starting position of left up corner in vertical direction on left corner, in dots

bottom_right_x   X starting position of right bottom corner in horizontal

        direction on left corner, in dots

bottom_right_y   X ending position of right bottom corner in vertical direction on

        right bottom corner, in dots

Returned value: Null

➢ Print text

public void drawTextTSPL(int start_x, int start_y, boolean

isSimplifiedChinese, int xMultiplication, int yMultiplication, PRotate rotate,

String content)

throws WriteException, PrinterPortNullException,ParameterErrorException

Method description: Print text

Parameter description:

start_x   starting position coordinate in X direction of text, in dots

start_y   starting position coordinate in Y direction of text, in dots

isSimplifiedChinese   true Simplified Chinese 24×24Font(GB); false Traditional

Chinese 24×24Font(BIG5), note English and numbers both 12*24.

isSimplifiedChinese is false, it must be traditional Chinese for the content, and set

character to BIG5, otherwise it will print out mess code.

xMultiplication   the multiplication times of text width, range 1~4

yMultiplication   the multiplication times of text height, range 1~4

Note: use xMultiplication, yMultiplication can set font size

rotate   clockwise direction rotate, PRotate.Rotate_0 no rotate.

PRotate.Rotate_90 rotate 90degree; PRotate.Rotate_180 rotate180 degree;

PRotate.Rotate_270 rotate 270 degree

content   Text content to be printed

➢ Print text in area

public void drawTextTSPL(int area_start_x, int area_start_y, int area_end_x, int

area_end_y, PAlign xAlign, PAlign yAlign, boolean isSimplifiedChinese, int

xMultiplication, int yMultiplication, PRotate rotate, String content)

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: print text in area, it could be specified horizontal direction and

vertical direction position. Horizontal direction: left align, center, right align; Vertical

direction: above align, center, below align;

Parameter description:

lineWidth   Border line width(dot)

top_left_x   X coordinate on top left corner of area(dot)

top_left_y   X coordinate on top left corner of area(dot)

bottom_right_x   X coordinate on bottom corner of area(dot)

bottom_right_y   Y coordinate on bottom right corner of area(dot)

xAlign   Position setting in X direction, left align,PAlign.START; Center,PAlign.CENTER; Right align, PAlign.END

yAlign   Position setting on Y direction, Top align,PAlign.START; Center, PAlign.CENTER; Below align, PAlign.END

Note: PAlign is self-defined Enum type. Including START, CENTER, END, NONE. Print according to real coordinate when it is NONE, no calculation to deal with. Same for below.

isSimplifiedChinese true Simplified Chinese 24×24Font(GB);false traditional Chinese 24×24Font,when isSimplifiedChinese is false, it has to be traditional Chinese in content, and set character to BIG5, otherwise it will printed mess code Chinese.

xMultiplication   Multiplication times for text width, range 1~4

yMultiplication   Multiplication times for text width, range 1~4

Note: Use xMultiplication, yMultiplication can set font size

rotate   clockwise rotate, PRotate.Rotate_0 no rotate; PRotate.Rotate_90 rotate 90 degree;PRotate.Rotate_180 rotate180 degree; PRotate.Rotate_90 rotate 270 degree

content   text content to be printed

➢   Print 1D barcode

public void drawBarCodeTSPL(int start_x, int start_y, PBarcodeType type,
int height, boolean isReadable, int narrowWidth ,
int wideWidth, PRotate rotate, String content)
throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: Print 1D barcode

Parameter description:

start_x   Starting position coordinate on X direction (dot)

start_y   Starting position coordinate on Y direction(dot)

type   Barcode type, support below type:

PPBarcodeType. 128   128 code

PPBarcodeType. EAN128   EAN128

PPBarcodeType. 39   39 code

PPBarcodeType. 93   93 code

PPBarcodeType. EAN13   EAN13 code

PPBarcodeType. EAN8   EAN8 code

PPBarcodeType. CODA   CODA

PPBarcodeType. UPCA   UPCA code

PPBarcodeType. UPCE5   UPCE+5 code

height   Barcode height, in dots

isReadable   0, not readable by human eyes; 1, readable

narrowWidth   narrow strip width [0~5]

wideWidth   wide strip width 0<=wideWidth/(narrowWidth+1)<5

                                    20<= wideWidth/(narrowWidth+1)<=30

Note: narrow strip and wide strip width could be set by narrowWidth and wideWidth, to enlarge barcode width.

rotate   clockwise rotate, PRotate.Rotate_0 no rotate; PRotate.Rotate_90 rotate 90degree; PRotate.Rotate_180 rotate 180degree; PRotate.Rotate_270 rotate 270 degree

content   barcode content

Returned value: Null

➢   Print 2D barcode

public void draw2DBarCodeTSPL(int start_x, int start_y, TwoDarCodeType type , int param1, int param2, PRotate rotate, String content)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: Print 2D Barcode

Parameter description:

start_x   X direction starting point coordinate(dot)

start_y   Y direction starting point coordinate(dot)

type   2D Barcode type (QRCode, DataMatrix)

TwoDarCodeType.QR   QRcode

TwoDarCodeType. DataMatrix   DataMatrix

param1   when the bar code type is DataMatrix, this parameter is invalid;When barcode type is QRCode, this parameter represents the error correction level of the QR code, 0 represents L 7%, 1 represents M 15%, and 2 represents Q 25%, and 3 represents H 30%.

param2   parameter represents 2D Barcode block width (1~6)

rotate   The rotation angle of the bar code, clockwise. 0, not rotate;90,rotate 90 degree; 180, clockwise rotate 180 degree; 270, clockwise rotate 180 degree. Note: When barcode type is DataMatrix, this parameter is invalid, pass freely.

content   Barcode content

Returned value: Null

➢   Print bitmap

public void drawBitmapTSPL(int start_x, int start_y, int mode, Bitmap bmp)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: Print bitmap

Parameter description:

start_x	horizontal starting position in dots image(dot)
start_y	vertical starting position in dots image(dot)
mode	image drawing mode 0 OVERWRITE ;1 OR ;2 XOR
bmp	bitmap objective(single color bitmap)

Returned value: Null

➢ Print bitmap in area

public void drawBitmapTSPL(int area_start_x, int area_start_y, int area_end_x, int area_end_y, PAlign xAlign, PAlign yAlign, int mode, Bitmap bmp)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: print text in border area, could set center, right align, left align on horizontal direction; Top align, center, below align on vertical direction.

Parameter description:

area_start_x	x coordinate of top left corner in area(dot)
area_start_y	y coordinate of top left corner in area(dot)
area_end_x	x coordinate of bottom right corner in area(dot)
area_end_y	y coordinate of bottom right corner in area(dot)
xAlign	position in horizontal direction
yAlign	position in vertical direction
mode	bitmap drawing mode 0 OVERWRITE;1 OR; 2 XOR
bmp	bitmap to be printed(single color bitmap)

Returned value: Null

➢ Print content in image buffer

public void printTSPL(int mSets, int mCopys)

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: print image butter, call print line, print text, barcode etc, printer will download the printed content into buffer, then print out by calling this method, specify how much pieces to be printed via mSets parameter, and how much pieces label to be printed in every piece of content via mCopus.

Parameter description:

mSets	Printed pieces quantity
mCopys	Printed label quantity in every piece

Returned value: Null

➢ Get printer status

public int getPrinterStatusTSPL()

throws WriteException, PrinterPortNullException,ReadExcetion,

ParameterErrorException

Method description: check printer status, including paper out, cover opened, and other error status which influence normal printing.

Parameter: Null

Returned value:

0   normal status

-1   paper out

-2   paper house cover opened

-3   other error

➢   Set character set code format

public void setCharsetNameTSPL(String charsetName)

throws ParameterErrorException

Method description: Set character set code format, note: this method is only applicable to ESC/POS, CPCL, TSPL command set.

Parameter:

charsetName   Character set name; Simplified Chinese, "GBK"; Traditional Chinese, "BIG5"

Note: When using drawTextTSPL method to print traditional Chinese, call this method to set character set to "BIG5"

Returned value: Null

➢   To control feed paper or back

public void setPaperbackOrPaperFeedTSPL(boolean isFeedBack, int mDot)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: control feed paper or back

Parameter:

isFeedBack back paper or not, true: back paper; false: feed one piece of paper

mDot dots of back paper; When choosing feeding paper, this parameter is invalid.

Returned value: Null

➢   Reverse printing in specified area

public void reverseAreaTSPL(int start_x, int start_y, int width, int heigth)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: reverse printing in specified area

Parameter:

start_x X coordinate of top left corner in area (dot)

start_y Y coordinate of top let corner in area (dot)

width   area width(dot)

height area height(dot)

Returned value: Null

➢ Clear data in image buffer

public void eraseAreaTSPL(int start_x, int start_y, int width, int heigth)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: clear data in this image buffer area

Parameter:

start_x   X coordinate of left corner in area (dot)

start_y   Y coordinate of left corner in area (dot)

width   Area width (dot)

height   Area height (dot)

Returned value: None

➢ To set related function of printer

public void setPrinterTSPL(CommandTSPL command,int value)

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: set related function of printer

Parameter:

command

CommandTSPL .DIRECTION   Set print direction; same as font when value is 0, opposite when value is 1.

CommandTSPL .FEED   Control paper feeding set; 1≤value≤1000 means dots.

CommandTSPL .REPRINT   Run reprinting order when error; Close this funtion when value is 1, open when value is 1.

CommandTSPL .SPEED   Specify printing speed; value is the inch value the paper feed every second.

CommandTSPL .DENSITY   Specify printing density; 0=<value<=15, the bigger the number is, the bigger density is.

CommandTSPL .SHIFT   Paper feed offset value; value >0, paper feed direction is same with printing direction; Opposite when it is <0;

CommandTSPL .FORMFEED   Control the printer feed one piece of paper; Value transmit freely.

CommandTSPL .HOME   Search starting position, make the gap align paper manual cutter; value transmit freely.

CommandTSPL . PRINTKEY   Set printing by button order(forbidden, allowed, automatically set unction of printing by button)

CommandTSPL . KEY1   Command of open function to preset KEY1 (this function is pause or feed paper)

CommandTSPL . KEY2　　　Command of open function to preset KEY2 (this function is pause or feed paper)

CommandTSPL . TEAR　　　Enable of close command of feeding paper to manual cutting position(gap align to manual cutting position)

CommandTSPL.PEEL　　　　　Enable peeler mode

Value　　　Detail meaning corresponds to command

　Returned value: None

➢　Open cash drawer

public void openCashBoxTSPL()

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: open cash drawer

Parameter: None

Returned value: None

➢　Check printer model No.

public String getPrinterNameTSPL()

throws WriteException, PrinterPortNullException,

ParameterErrorException,ReadException

Method description: check printer model NO.

Parameter: None

Returned value: Printer detail model No.

➢　Set vertical spacing between labels

public void setGAPTSPL(int value)

throws WriteException, PrinterPortNullException,

ParameterErrorException

　Method description: Set vertical spacing between labels

Parameter:

value　　　　　　　　　　vertical spacing between labels(unit: mm),

mm(0≦m≤1(inch), 0≦m≤25.4(mm)

　Returned value: None

➢　Select codepage

public void selectCodePageTSPL(int value)

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: Select codepage

Parameter:

Value　　　　　　437: United States

850: Multilingual

852: Slavic

860: Portuguese

863: Canadian/French

865: Nordic

857: Turkish

1250: Central Europe

1252: Latin I

1253: Greek

1254: Turkish

Transmit other value: default by 437

Returned value: None

➢ Select international Character set

public void selectCountryTSPL(int value)

throws WriteException, PrinterPortNullException,

ParameterErrorException

➢ Method description: Select international Character set

Parameter:

Value   1: USA

2: Canadian-French

3: Spanish (Latin America)

33: French (France)

34: Spanish (Spain)

39: Italian

42: Slovak

44: United Kingdom

45: Danish

46: Swedish

47: Norwegian

49: German

61: English (International)

Pass other value: 1 by default

Returned value: None

➢ Control buzzer beep one sound

public void beepTSPL(int level,int interval)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: Set the sound level and interval of buzzer, need to send BEEP

after set, then buzzer will sound

Parameter:

Level   Level of buzzer sound

Interval   Interval of buzzer sound

Returned value: None

➢   Download bitmap in printer

public void downloadBitmap2PrinterTSPL(boolean isMove2Flash, InputStream in, String fileName)

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: download bitmap in printer

Parameter:

isMove2Flash false download bitmap to printer RAM(the data in RAM will lost if lose power); true download to Flash(enter in RAM data and move to FLASH by MOVE command)

in   input stream of bitmap under the downloaded raw content.

filename   download into RAM or printer FLASH, and specify filename, 8 characters longest.

Returned value: None

Note: Bitmap data dots as per BITMAP command rule.

➢   Put downloaded bitmap into printer buffer

public void putBitmapTSPL(String fileName,int start_x, int start_y)

throws WriteException, PrinterPortNullException, ParameterErrorException

Method description: Put downloaded bitmap data in printer flash RAM or FLASH into printing buffer area coordinate(start_x,int start_y)

Parameter:

filename   the bitmap name which has downloaded into printer, have to be same with Bitmap name in printer RAM or FLASH, otherwise it possibly cannot be printed out, i.e, downloadBitmap2Printer method download bitmap into printer, put Bitmap in printing buffer area.

start_x   Bitmap data Horizontal X coordinate

start_y   Bitmap data Horizontal Y coordinate

Returned value: None

➢   Print selftest paper

public void printSelfTestTSPL()

throws WriteException, PrinterPortNullException,

ParameterErrorException

Method description: printer send command to print selftest paper

Parameter: None

Returned value: None

➢ Set reference coordinate origin of label content

public void setLabelReferenceTSPL(int left,int top)

throws PrinterPortNullException,ParameterErrorException

Method description: Set reference coordinate origin of label, adjust the label content position on label.

Parameter: left left margin of label content to label paper(mm)

top top margin of label content to label paper(mm)

Returned value: None

➢ Send string in format of command to printer

Method description: public void sendStrToPrinterTSPL(String str)

throws PrinterPorNullException,WriteException,

ParameterErrorException

Method description: send TSPL command in SDK to printer

Parameter description: str conform to TSPL command format

Returned value: None

3.1.7 Method to control printer hardware

Method	Description
cutPaper	Cut paper
ringBuzzer	Control buzzer beep
blackLableFind	Black mark location

➢ To cut paper

Method instruction: public void cutPaper(int cutterType, int n)

Method description: cut paper, full cut or partial cut

Parameter description: cutterType

48 full cut directly

49 partial cut directly

65 feed paper to (paper cutting position+[n ×(Vertical moving unit)]) and full cut

66 feed paper to (paper cutting position+[n×(Vertical moving unit)])and partial cut

Note: vertical moving unit is one unit

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n: Longitudinal movement points, valid when cutterType is 65

Returned value: Null

- ➢ To control buzzer beep

  Method instruction: public void ringBuzzer(int time)

  Method description: to control the time buzzer will beep(seconds)

  Parameter description: time: seconds which buzzer will beep

  Returned value: Null

- ➢ Black mark location

Method description: public void blackLableFind()

Method description: printer feed paper to black mark position(printer need to support black mark location function, with black mark sensor). Meanwhile black mark location function is only valid under black mark mode, if could not find black mark, then printer will stop after feed paper 30cm. (How to open black mark location function, please contact our pre-sales technique to ask setting tool, set related function enable.)

Parameter: Null

Returned value: Null

3.1.8 Get the current state of the printer

Method	Description
getCurrentStatus	Get printer current status
getPrintingStatus	Printing finished or not
isPaperOut	Tell paper out or not
isPaperWillOut	Tell printer paper near end or not

- ➢ Get the current state of the printer

  Method name: public int getCurrentStatus ()

  Method description: to get the current status of the printer, including printer status normal, lack of paper, cover opening, paper near end, communication abnormal. All printers are with paper near end test function except EU seriez printer, which function need to be manual opened to test paper near end. (How to open paper near end function, please contact our pre-sale technique to get setting tool, set related function enable)

Parameter description: Null

Returned value:

0   Printer status normal

-1   Printer communication abnormal

-2   Paper out

-3   Paper near end

-4   Paper house cover opened

➢ Printing finished or not

Method description: public int getPrintingStatus(String BufferMsg, int timeout)

Method description: Get whether the printer completes printing

Parameter Description: Msg, Receive information of whether printing is completed, specific value and the significance of the method's returned Android-SDK Printer Developing Manual value corresponds. that is, the "current printing has been completed," "unknown anomaly", "Printing is not completed, out of paper" and so on.

Timeout :estimate requiring time of printing one order

Returned value:

 0 Printing completed

-1 Unknown abnormal

-2   The current printer is printing

-3   Printing is not completed, out of paper

-4   Printing is not completed, printer paper cover opens

-5   Printing is not completed, fail to communicate with the printer

-6 data transmission failure, abnormal communication

-7 receiving data format is incorrect

Principle: printer single-chip microcomputer CPU execution data is sequential, send print data first, after sending the query whether print complete instructions, according to the principle of performing data after the "junior", execute commands to print complete judgment, must be performed to print data.

Example 1: query printing is completed

```
/ / 1. Judge the current status of the printer before sending the data to print
If (getCurrentStatus ()!= 0) {
Return;
}
/ / 2, send print data
MPrinter. PrinterText (" hello world!");
StringBuffer STR = new StringBuffer (" ");
Int timeout = 2000;/ / expected to print the time of the above text
/ / 3, determine whether the printing is finished
Int ret = mPrinter. GetPrintingStatus (STR, timeout);
If (ret = = 0) {
Log. I (SPRT ""," text print finished!");
}
```

➢ Judge whether the printer is out of paper

Method Name: public boolean isPaperOut ()

Method Description: judge whether the printer is out of paper

Parameters: None

Return Value: true is out of paper, false is not out of paper

➢ Judge whether printer is out of paper

Method name: public boolean isPaperWillOut()

Method description: Judge printer is paper out or not, only some model have paper near end sensor, need to open paper near end function before getting paper near end status.

Parameter description: Null

Returned value: true paper near end, false paper enough.

3.1.9 The call examples of connecting printers

```
//1、handler created by n is for receiving message of connection success or failure
privateHandlermHandler = newHandler() {
@Override
publicvoidhandleMessage(Messagemsg) {
switch (msg.what) {
caseConnect.SUCCESS:
   isConnected = true;//connect successfully
   break;
caseConnect.FAILED:
   isConnected = false;
   Toast.makeText(mContext, R.string.conn_failed,Toast.LENGTH_SHORT).show();
   Log.i(TAG, "connect fail!");
   break;
caseConnect.CLOSED:
   isConnected = false;
   Toast.makeText(mContext, R.string.conn_closed,Toast.LENGTH_SHORT).show();
   Log.i(TAG, "connection closed!");
    break;
caseConnect.NODEVICE:
   isConnected = false;
   Toast.makeText(mContext, R.string.conn_no, Toast.LENGTH_SHORT).show();
   break;
default:
```

```
        break;
}
```

//2、Instantiate printers, other communication mode instantiate this object, please refer to demo

```
BluetoothDevicemDevice =
BluetoothAdapter.getDefaultAdapter().getRemoteDevice(devicesAddress);//devicesAddress is mac address of Bluetooth
PrinterInstance mPrinter = PrinterInstance.getPrinterInstance(mDevice, mHandler);
```

//3、Open connection

```
mPrinter.openConnection();
```

//4、Start to print data

//Judge whether connection is normal before printing, and printer is sufficient of paper, and paper

cover is closed

```
if (mPrinter != null&&mPrinter.getCurrentStatus() == 0){
        mPrinter.setFont(0,1,1,1,1);//Set the font, double height, double width, bold, underline
        mPrinter.setPrinter(Command.ALIGN, Command.ALIGN_CENTER);//Set font center
        mPrinter.printText("printTest!" + "\r\n");//Print text printTest!
        mPrinter.setPrinter(Command.PRINT_AND_WAKE_PAPER_BY_LINE, 2);
        mPrinter.setFont(1,1,1,1,1);//Set font9*17, double height, double width, bold, underline
        mPrinter.printText("printTest!" + "\r\n");//Print text printTest!
}else {
        //Printer status is abnormal:connection error,out of paper, paper cover is opening, near-
end
paper
        Toast.makeText(mContext, "printerstatusisnotnormal! ", 1).show();
}
```

//5、close printer connection

```
mPrinter.closeConnection();//close connection
```

Below use Bluetooth communication method calls for example ,other connect call please

refer"PrintDemoV5.2"。

3.2 Barcode Printing Class

constructor function
Barcode Printing call example

3.2.1 constructor function

Method	Description
Barcode	Create Barcode example

➢ Create Barcode examples

Method name: Barcode(byte barcodeType, int param1, int param2, in param3, String content);

Method description: create Barcode examples

Parameter description:

barcodeType is barcode type, the Type constants begin with Printer Constants

1D Barcode: UPC_A, UPC_E, JAN13, JAN8, CODE39, ITF, CODABAR, CODE93, CODE128.

2D barcode: PDF417,DATAMATRIX,QRCODE.

param1,param2,param3 are specific barcode parameters:

When code type is 1D barcode, expressed by three parameters:

param1: barcode transverse width, $2<=n<=6$, default is 2

param2: barcode height $1<=n<=255$, default is 162

param3: barcode note location, 0--No print, 1--Above, 2--Below, 3--Above and below, both print . Barcode type is 2-D barcodes, the three parameters shows different meanings:

1. PDF417

param1: indicates the number of characters per line, $1<=n<=30$.

param2: indicates Error Correction Level, $0<=n<=8$ $0<=n<=8$.

param3: indicates longitudinal magnification.

2. DATAMATRIX

param1: indicate graph height, $0<=n<=144$(0:automatic selection).

param2: indicate graph width, $8<=n<=144$(param1 is 0, invalid).

param3: indicates Longitudinal magnification.

3. QRCODE

param1: indicates graphic version NO., $1<=n<=30$(0:automatic selection).

param2: indicates Error Correction Level, n = 76, 77, 81, 72(L: 7%, M:15%, Q:25%, H:30%).

param3: indicates Longitudinal magnification.

Content is barcode data.

3.2.2 Barcode Printing call example

➢ Print 1-D barcode call examples, for example code128

Barcodebarcode1 = newBarcode(BarcodeType.*CODE128*, 2, 150, 2,"123456");

mPrinter.printBarCode(barcode1);//mPrinter Printer Instance, and the printer is connected

➢ Print 2-D barcode call examples, for example QRCode

Barcodebarcode2 = newBarcode(BarcodeType.*QRCODE*, 2, 3, 6,"123456");

mPrinter.printBarCode(barcode1);//mPrinter Printer Instance, and the printer is connected

NOTE: For more barcode printing calls, pls See BarcoePrintActivity.java

3.3 Table Form Printing Class

Create Table examples
Add One Row Data
Setting the column data alignment in the Table
Form printing call example

3.3.1 Create Table examples

Method	Description
Table	Create Table examples

public Table(String column, String regularExpression, int columnWidth[])

Method description: Create Table examples

Parameter: column parameter, column is the header which separated with regular.

Example: "serial number, unit price, quantity, amount "

regularExpression   is the string delimiter. For example the above ","

columnWidth   is character width of each column in the table. The

Calculation of default font size is two Chinese, one English,

and then added together, such as the width of " Serical

number" width is 4

Returned Value: Table examples

3.3.2 Add One Row Data

Method	Description
addRow	Add One Row Data

public void addRow(String row)

Method Description: Add one row data

Parameters Description: A row

The data format is consistent with the header format. If the data in one table cell is beyond the limited character width, it will change line to print, if manually changing, it can add "\ n" on the position to change line.

Returned Value: No

3.3.3 Setting the column data alignment in the Table

Method	Description
setColumnAlignLeft	Setting the column data alignment in the Table

Method description: setColumnAlignLeft(boolean left);

Method Description: Setting the column data alignment in the Table, default is right alignment.

Parameter Description: left Setting the column data align left in the Table.

Returned Value: Null

3.3.2 Add One Row Data

Method	Description
addRow	Add One Row Data

public void addRow(String row)

Method Description: Add one row data

Parameters Description: A row

The data format is consistent with the header format. If the data in one table cell is beyond the limited character width, it will change line to print, if manually changing, it can add "\ n" on the position to change line.

Returned Value: No

3.3.3 Setting the column data alignment in the Table

Method	Description
setColumnAlignLeft	Setting the column data alignment in the Table

Method description: setColumnAlignLeft(boolean left);

Method Description: Setting the column data alignment in the Table, default is right alignment.

Parameter Description: left Setting the column data align left in the Table.

Returned Value: Null

3.3.4 Form printing call example

String column ="Name, unit price, quantity, amount ";

Tabletable = newTable(column, ";", newint[] { 14, 6, 6, 6 });

table.addRow("Storage bags"+ ";10.00;1;10.00");

table.addRow("wire hook" + ";5.00;2;10.00");

table.addRow("Umbrella"+ ";5.00;3;15.00");

mPrinter.printTable(table);// mPrinteris the real example object o f PrinterInstance, and printer is connected.

NOTE: More details about pdf printing calls, pls refer to print_note click ticket printing example in TextPrintActivity.java

3.4 Canvas Printing Class

Brief Description: Canvas print is the layout of printing the uncommon language or custom by graphic type. Text can be drawn on the canvas; users can call a third-party font file to set the font, draw bar codes, graphics and so on, then Eventually convert the bitmap. please call printImage in 2.1.4 to complete canvas printing. The main methods are as follows:

Initialization canvas
Set Font Property
Canvas contextual method
Call sample for canvas printing

3.4.1 Initialization canvas

Method	Description
init	Initialization canvas

Method Name:public void init(PrinterType printerType)

Method Description: Initialization canvas

Parameters Description: Parameter is printer type .T9 designated canvas is

80mm paper width, PrinterType . TIII specified canvas 58mm paper width

Return Value: Null

3.4.2 Set Font Property

Method	Description
setFontProperty	set Font Property

Method Name:public void setFontProperty(FontProperty fp)

Method Description: set Font Property. Parameters is FontProperty type,

FontProperty is a collection of font properties, including bold, italic, and so on.

Parameters Description: FontProperty examples

Returned Value: No

Note: Calling this method requires to explicit instantiation FontProperty , then

call FontProperty Class

setFont(boolean bBold,boolean bItalic,boolean bUnderLine,boolean bStrikeout,int

iSize,Typefaces Face)

setFont the order method parameters:

bBold   true Bold; false normal font, Note: if Set Chines is Bold separately,it

will not print.

bItalic   true italic, false normal font

bUnderLine   true underline,false no underline

bStrikeout   true strikeout,false no strikeout

iSize   font size (value is an integer)

bItalic   true italic, false normal font

sFace   font type (generally set to null, means

using the system default font)

If not this method, it can be set separately as below:

setLineWidth(floatw);   Painting Line Width

setTextSize(intsize);   Font Size

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setItalic(booleanitalic);   Italic or not

setStrikeThruText(booleanstrike);   deleting line or not

setUnderlineText(booleanunderline);   Underline or not

setFakeBoldText(booleanfakeBold);   Bold or not

Return Value: Null

3.4.3 Canvas content related method

Method	Description
drawText	Draw string
drawLine	Draw Line
drawRectangle	Draw Rectangle
drawEllips	Draw ellipse
drawImage	Draw image
getCanvasImage	Getting the image drew on canvas and sending to the printer to print.
setTextAlignRight	Set whether the text is right align
setTextExceedNewLine	Set whether entering new line when text exceeds.
setUseSplit	Set whether to use split string when changing the new line because of text exceeds, to avoid one word is split. The default is to split by Space.
setUseSplitAndString	If the text is beyond the line, use a delimited string or not to avoid a single word split. Break up with the specified symbol.

➢   Draw string

  Method Name:public void drawText(String nStr);

             public void drawText(float x, String nStr);

             public void drawText(float x, float y, String nStr);

  Parameters Description: x, y is the lower left corner coordinates of the string, nStr is the string to be drawn

  Return Value: No

➢   Draw Line

  Method Name:publi void drawLine(float startX, float startY, float stopX, float stopY);

Parameters Description: startX,startY is Start coordinates, stopX, stopY is end coodinates

Returned Value: Null

➢ Draw Rectangle

Method Name:drawRectangle(float left, float top, float right, float bottom);

Parameters Description:The parameter is the upper left corner, the bottom right corner

Returned Value: Null

➢ Drawing ellips,The parameter is the upper left corner of the ellipse, and the bottom right corner

drawEllips(float left, float top, float right, float bottom);

➢ Drawing image,The left and top parameters of the parameter are the top left coordinates of the image. Bitmap is the image file.

drawImage(Bitmapimage);

drawImage(float left, Bitmap image);

drawImage(float left, float top, Bitmap image);

➢ Getting the image drew on canvas and sending to the printer to print.

getCanvasImage();

➢ Set whether the text is on the right. For some special characters, such as Arabic language.

setTextAlignRight(boolean alignRight);

➢ Set whether to change one new line when text exceeds.

setTextExceedNewLine(boolean newLine);

➢ Set whether to use split string when changing the new line because of text exceeds, to avoid one word is split. The default is to split by Space.

setUseSplit(boolean useSplit);

setUseSplitAndString(boolean useSplit, String splitStr);

3.4.4 Call sample for canvas printing

CanvasPrintcp=newCanvasPrint();//Create canvas

BitmapbitmapCODE39 = createBitmapQR_CODE("123456789", 270, 270);//Create two-dimension bar code

cp.init(PrinterType.*T9*);

// Draw two-dimension bar code on the position of canvas with coordinate (0,0)

cp.drawImage(0, 0, bitmapCODE39);

cp.drawImage(0, 0, bitmapCODE39);

//Create Font

FontPropertyfp=**new**FontProperty();

// Set value of font property. Here the parameter number will be a little different

according to the different version of SDK.

fp.setFont(**true**, **false**, **false**, **false**, 40, **null**);

// Set Font

cp.setFontProperty(fp);

//Draw text on the appointed coordinate position of canva

cp.drawText(250,80,"scan upgrade");

cp.drawText(250, 120, "your intelligent car life");

cp.drawText(250,180,"service telephone number");

cp.drawText(250, 220, "4008317317");

//Draw text on the appointed coordinate position of canvas.

mPrinter.printImage(cp.getCanvasImage(), PAlign.*NONE*, 0);

Remark: About more detailed about canvas calling and printing, pls refer to

btn_canvas_print in PicturePrintActivity.java

3.5 BitmapConvertor class

Class explanation: This class is mainly used to transfer colorful image to

Black&White binary bitmap.

Transfer colorful image to Black&White binary bitmap

3.5.1Transfer colorful image to Black&White binary bitmap

Method	Description
convertBitmap	Transfer colorful image to Black&White binary bitmap

Name:public Bitmap convertBitmap(Bitmap inputBitmap)

Method description: Transfer colorful image to Black&White binary bitmap.

Support the common colorful image, including JPG, PNG, Bitmap, etc.

Parameter explanation:

inputBitmap : colorful bitmap, BitmapFactory.decodeResource can be used to

transfer the common colorful image JPG, PNG, Bitmap, etc to inputBitmap ,

inputBitmap should be accord with printer printing width. Exceeding the printing

width will cause incomplete printed image. If inputBitmap is too big, it will cause

very slow transfer. So the compressing should be arranged firstly.

Returned value: null

Remark:Colorful image is 24, 32 bit depth. There will be different degree distortion when it is transferred Black&White binary bitmap with 1 bit depth. If need to print more clear picture, the user needs to make the clear Black&White binary bitmap. Calling printImage(Bitmap bitmap) in Printer Instance to Complete.

3.6 Correlation Class of Printing PDF file

Class explanation: The correlation classes are mainly PdfContext,CodecDocument,CodecPage , these classes transfer PDF file to be bitmap, call printImage in PrinterInstance to let printer be able to print PDF file normally. The PDF file should be black&white PDF file. If printing colorful PDF file, there will be different degree distortion.

Open PDF file
Getting one page object of PDF file
PDF is transferred to Bitmap
Calling example for PDF printing

3.6.1 Calling example for PDF printing

1、Add processing PDF files to code projects so bank，which is：libmupdf.so

2、Code processing flow

//1、Instantiation PDF files process core class

MuPDFCore core = new MuPDFCore(this, filePath);

//2、Get the page number of PDF files

int count = core.countPages();

//3、Get the width and height of PDF files

PointF pageSize = core.getPageSize(0);//Get the width and height of page 1 currently

float pageW = pageSize.x;

float pageH = pageSize.y;

//4 、Transfer PDF files to bitmap

Bitmap bitmap = Bitmap.createBitmap((int)pageW, (int)pageH, Bitmap.Config.ARGB_8888);

core.drawPage(0, bitmap, (int) pageW, (int) pageH, 0, 0, (int)pageW, (int)pageH);

//5、Zoom abovePDF files

Bitmap zoomImage = Utils.zoomImage(bitmap, 500);//Scale by 500 pixels wide

//6、bitmaptransfer monochrome bitmap When bitmap is large and the operation is slow, please call processing in the threading.

//The bitmap might have a certain degree distortion because of the zoom and rotation.

Bitmap monoChromeBitmap = convertor.convertBitmap(zoomImage);

//7、Print Bitmap

mPrinter.printImage(monoChromeBitmap, PAlign.START, 0, false);

Remark: About more details of calling PDF printing, pls refer to PdfPrintActivity.java calling.

3.7、CodePage Printer multilingual code page Print class

Multilingual code page print examples are defined in this class, which support part of languages in the world. Users should know the codepage of the language in advance and print by invoking the specified codepage. Some codepage might not be supported by part of printer, if users need, please contact us for customization services.

Remark：Traditional Chinese，which can be print by printText directly，such as：

mPrinter.printText("Print text!\n");

Method	Description
CodePagePrinter(PrinterInstance mprinter)	Construction Method
printTextInCP437	Print Codepage CP437 font(American and European standard)
printTextInCP850	Print multi-language （Multilingual）
printTextInCP932	Print CodepageCP932 font（Katakana）font
printTextInCP860	Print CodepageCP860 Portuguese font
printTextInCP863	Print CodepageCP863 Canadian French font
printTextInCP865	Print CodepageCP863 Northern Europe language font
printTextInWCP1251	Print Codepage WCP1251 Slavic font
printTextInMIK	Print Codepage MIK Slavic/Bulgarian font
printTextInCP862	Print Codepage CP862 Hebrew font
printTextInWCP1252	Print Codepage WCP1252，Latin1 font
printTextInWCP1253	Print Codepage WCP1252
printTextInCP852	Print Codepage CP852 Latin2 font
printTextInCP858	Print Codepage CP858multi-language Latin1+Euro font
printTextInCP720	Print Codepage CP720 Arabic font

printTextInCP864	Print Codepage CP864 Arabic font
printTextInISO_8859_1	Print Codepage ISO-8859-1 Western Europe language font
printTextInCP737	Print Codepage CP737 Greek language font
printTextInWCP1257	Print Codepage CP737 Baltic language font
printTextInCP855	Print Codepage CP855Slavic font
printTextInCP857	Print Codepage CP857 Turkish font
printTextInWCP1250	Print Codepage WCP1250 Middle Europe language font
printTextInCP775	Print Codepage CP775 font
printTextInWCP1254	Print Codepage WCP1254 Turkish font
printTextInWCP1255	Print Codepage WCP1255 Hebrew font
printTextInWCP1256	Print Codepage WCP1256 Arabic font
printTextInWCP1258	Print Codepage WCP1258 Vietnamese font
printTextInISO_8859_2	Print Codepage ISO_8859_2 Latin2 font
printTextInISO_8859_3	Print Codepage ISO_8859_2Latin3 font
printTextInISO_8859_4	Print Codepage ISO_8859_4 Baltic language font
printTextInISO_8859_5	Print Codepage ISO_8859_5 Slavic font
printTextInISO_8859_6	Print Codepage ISO_8859_6 Latin font
printTextInISO_8859_7	Print Codepage ISO_8859_7 Turkish font
printTextInISO_8859_8	Print Codepage ISO_8859_8 Hebrew font
printTextInISO_8859_9	Print Codepage ISO_8859_9 Turkish font
printTextInISO_8859_15	Print Codepage ISO_8859_15 Latin9 font
printTextInCP874	Print Codepage CP874 font

4. Appendix

4.1 Summarize of CODE128

In CODE 128, through using Character Set A, Character Set B and Character Set C alternatively to encode 128pcs ASCII characters, 100pcs 00~99 numbers and some special characters. For each Character Set, encoded characters are as below,

・ Character A: ASCII characters 00H to 5FH

・ Character B: ASCII characters 20H to 7FH

・ Character C: 100pcs numbers 00~99

Code128 can also encode the below special characters:

・ SHIFT characters

"SHIFT"can transfer the first character after SHIFT character from Character Set A to Character Set B, or from Character Set B to Character Set A. From the second character, it will recover to the previous character set of SHIFT. "SHIFT"characters can only transfer between Character Set A and Character Set B, but can not make the current encoding character enter or

quit the status of Character Set C.

・ Characters to choose Character Set (CODE A、CODE B、CODE C)

These characters can transfer the next encoding characters to Character Set A, B or C.

・ Function Character(FNC1、FNC2、FNC3、FNC4)

The function of these function characters depends on the application software.

In Character Set C, only FNC1 can be used.

4.2 Character Set

Character Set A

Character	Send data Hex	Send data Decimal	Character	Send data Hex	Send data Decimal	Character	Send data Hex	Send data Decimal
NULL	00	0	&	26	38	L	4C	76
SOH	01	1	'	27	39	M	4D	77
STX	02	2	(	28	40	N	4E	78
ETX	03	3	)	29	41	O	4F	49
EOT	04	4	*	2A	42	P	50	80
ENQ	05	5	+	2B	43	Q	51	81
ACK	06	6	,	2C	44	R	52	82
BEL	07	7	-	2D	45	S	53	83
BS	08	8	.	2E	46	T	54	84
HT	09	9	/	2F	47	U	55	85
LF	0A	10	0	30	48	V	56	86
VT	0B	11	1	31	49	W	57	87
FF	0C	12	2	32	50	X	58	88
CR	0D	13	3	33	51	Y	59	89
SO	0E	14	4	34	52	Z	5A	90
SI	0F	15	5	35	53	[	5B	91
DLE	10	16	6	36	54	\	5C	92
DC1	11	17	7	37	55	]	5D	93
DC2	12	18	8	38	56	^	5E	94
DC3	13	19	9	39	57	_	5F	95
DC4	14	20	:	3A	58	FNC1	7B,31	123,49
NAK	15	21	;	3B	59	FNC2	7B,32	123,50
SYN	16	22	<	3C	60	FNC3	7B,33	123,51
ETB	17	23	=	3D	61	FNC4	7B,34	123,52
CAN	18	24	>	3E	62	SHIFT	7B,53	123,83
EM	19	25	?	3F	63	CODEB	7B,42	123,66
SUB	1A	26	@	40	64	CODEC	7B,43	123,67
ESC	1B	27	A	41	65			
FS	1C	28	B	42	66			
GS	1D	29	C	43	67			
RS	1E	30	D	44	68			
US	1F	31	E	45	69			
SP	20	32	F	46	70			
!	21	33	G	47	71			
"	22	34	H	48	72			
#	23	35	I	49	73			
$	24	36	J	4A	74			
%	25	37	K	4B	75			

Character Set B

charact er	Send data		characte r	Send data		characte r	Send data	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
SP	20	32	F	46	70	l	6C	108
!	21	33	G	47	71	m	6D	109
"	22	34	H	48	72	n	6E	110
#	23	35	I	49	73	o	6F	111
$	24	36	J	4A	74	p	70	112
%	25	37	K	4B	75	q	71	113
&	26	38	L	4C	76	r	72	114
'	27	39	M	4D	77	s	73	115
(	28	40	N	4E	78	t	74	116
)	29	41	O	4F	79	u	75	117
*	2A	42	P	50	80	v	76	118
+	2B	43	Q	51	81	w	77	119
,	2C	44	R	52	82	x	78	120
-	2D	45	S	53	83	y	79	121
.	2E	46	T	54	84	z	7A	122
/	2F	47	U	55	85	{	7B,7B	123,123
0	30	48	V	56	86			7C	124
1	31	49	W	57	87	}	7D	125
2	32	50	X	58	88	—	7E	126
3	33	51	Y	59	89	DEL	7F	127
4	34	52	Z	5A	90	FNC1	7B,31	123,49
5	35	53	[	5B	91	FNC2	7B,32	123,50
6	36	54	\	5C	92	FNC3	7B,33	123,51
7	37	55	]	5D	93	FNC4	7B,34	123,52
8	38	56	^	5E	94	SHIFT	7B,53	123,83
9	39	57	_	5F	95	CODEA	7B,41	123,65
:	3A	58	`	60	96	CODEC	7B,43	123,67
;	3B	59	a	61	97			
<	3C	60	b	62	98			
=	3D	61	c	63	99			
>	3E	62	d	64	100			
?	3F	63	e	65	101			
@	40	64	f	66	102			
A	41	65	g	67	103			
B	42	66	h	68	104			
C	43	67	i	69	105			
D	44	68	j	6A	106			
E	45	69	k	6B	107			

CharacterC

Character	Send data		character	Send data		character	Send data	
	Hex	Decimal		Hex	Decimal		Hex	Decimal
0	00	0	38	26	38	76	4C	76
1	01	1	39	27	39	77	4D	77
2	02	2	40	28	40	78	4E	78
3	03	3	41	29	41	79	4F	79
4	04	4	42	2A	42	80	50	80
5	05	5	43	2B	43	81	51	81
6	06	6	44	2C	44	82	52	82
7	07	7	45	2D	45	83	53	83
8	08	8	46	2E	46	84	54	84
9	09	9	47	2F	47	85	55	85
10	0A	10	48	30	48	86	56	86
11	0B	11	49	31	49	87	57	87
12	0C	12	50	32	50	88	58	88
13	0D	13	51	33	51	89	59	89
14	0E	14	52	34	52	90	5A	90
15	0F	15	53	35	53	91	5B	91
16	10	16	54	36	54	92	5C	92
17	11	17	55	37	55	93	5D	93
18	12	18	56	38	56	94	5E	94
19	13	19	57	39	57	95	5F	95
20	14	20	58	3A	58	96	60	96
21	15	21	59	3B	59	97	61	97
22	16	22	60	3C	60	98	62	98
23	17	23	61	3D	61	99	63	99
24	18	24	62	3E	62	FNC1	7B,31	123,49
25	19	25	63	3F	63	CODEA	7B,41	123,65
26	1A	26	64	40	64	CODEB	7B,42	123,66
27	1B	27	65	41	65			
28	1C	28	66	42	66			
29	1D	29	67	43	67			
30	1E	30	68	44	68			
31	1F	31	69	45	69			
32	20	32	70	46	70			
33	21	33	71	47	71			
34	22	34	72	48	72			
35	23	35	73	49	73			
36	24	36	74	4A	74			
37	25	37	75	4B	75			