Zebra® PrintConnect™

User Guide

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PrintConnect and TestConnect share the same Open Source Software libraries.

EventBus

https://github.com/greenrobot/EventBus

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Jackson Jr

https://github.com/FasterXML/jackson-jr

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About This Document

This section provides you with contact information, document structure, and organization.

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Who Should Use This Document

This manual is intended for use by any developer who needs to install, integrate, upgrade, or troubleshoot problems with PrintConnect.

How This Document Is Organized

The manual is set up as follows:

Section	Description
Introduction on page 15	This chapter provides general information about PrintConnect and includes supported operating systems, connectivity, printers, and devices.
Installation and Setup on page 21	This chapter identifies how to download, setup, and perform a test print.
Cloud Storage on page 33	This chapter outlines how to set up cloud storage, test print the template, and provides tips and tricks for it.
Customizations on page 43	This chapter provides instructions to design and customize your templates using ZebraDesigner, print the new template with TestConnect, and other ways to create your own solution.
PrintConnect on page 59	This chapter describes the screens, notifications, and error messages of PrintConnect.
TestConnect on page 81	This chapter provides instructions to print using examples included in TestConnect.
Intents on page 87	This chapter describes Android Intents and provides sample code.

Document Conventions

The following conventions are used throughout this document to convey certain information.

Alternate Color (online only) Cross-references contain hot links to other sections in this guide. If you are viewing this guide online in.pdf format, you can click the cross-reference (blue text) to jump directly to its location.

Command Line Examples Command line examples appear in `Consolas` font.

Files and Directories File names and directories appear in `Consolas` font. For example, the `Zebra<version number>.tar` file and the `/root` directory.

Icons Used

Important • Advises you of information that is essential to complete a task.

Note • Indicates neutral or positive information that emphasizes or supplements important points of the main text.

Contact Zebra

To contact Zebra or for technical support, visit www.zebra.com/contact.

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Introduction

This chapter provides general information about PrintConnect and includes supported operating systems, connectivity, printers, and devices.

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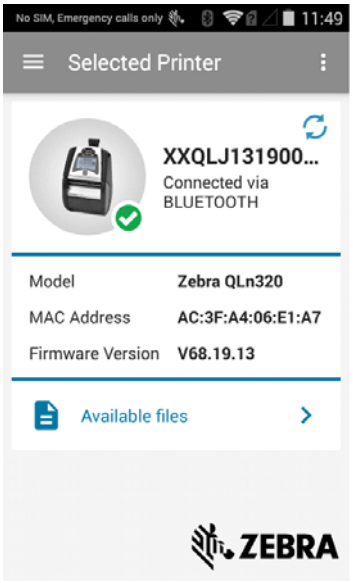
Introduction

PrintConnect is an Android application which will merge variable data from your application with a Zebra Programming Language (ZPL) template, and print the complete document on various mobile and stationary Zebra Link-OS™ printers via wired, wireless, or Bluetooth connections.

Create your own templates using ZebraDesigner™, our label design software for Windows® and store them on your device or on a Cloud storage account for use with PrintConnect. To ensure your printing solution delivers optimal print speed and throughput, this solution has been designed to use ZPL, which is the native command language for Zebra printers.

PrintConnect uses Zebra Programming Language (ZPL) ready-made templates or your own customized templates to assist with the design of printed labels and receipts. These templates may be stored on your in-house network or in the cloud, customized using ZebraDesigner, output to a file, test printed, and embedded into your source code. Templates are comprised of any combination of text, graphics, fonts, variables, and formats. To ensure your printing solution delivers optimal print speed and throughput, PrintConnect has been designed to use ZPL, which is the native command language for Zebra printers.

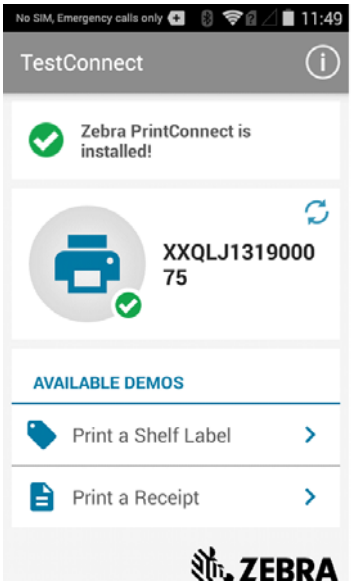
Figure 1 • PrintConnect



The app is available from Click2Demo, Launch Pad, and App Gallery stores.

TestConnect™ is an application that can be used to demonstrate PrintConnect and validate your printer connection to PrintConnect. TestConnect contains pre-set variable data for the fields used in the example label and receipt templates included with PrintConnect. TestConnect allows you to print either template with different predefined sets of variable data.

Figure 2 • TestConnect



Target Audience

PrintConnect is intended for Android developers looking for a simple way to add printing to their application.

Value to Developers

PrintConnect saves developers the time of embedding print code in their application. With PrintConnect, the print portion of the solution can be updated without having to rewrite the application.

Requirements

Printer Platform

PrintConnect supports the following Zebra Link-OS™ printers:

- iMZ™ series
- QLn™ series
- ZQ™ series
- ZD™ series
- ZT™ series

Connectivity

The app supports the following types of connectivity:

- Bluetooth
- Wired/Ethernet
- Wireless

Operating Systems

The application supports:

- Android versions 4.1, 4.2, 4.3, 4.4, and 5.0

Device Platform

The application supports (and has been tested on) both smartphones and tablets listed below.

- ET1
- MC3200
- MC40
- MC67
- Nexus 10 (4.2)
- Nexus 7 (4.2)
- TC55
- TC70

Note • Other devices using Android operating system version 4.1 or greater may be supported, but were not included in our testing.

Use Cases

PrintConnect can be used to print the receipt and label document types described below.

A combination of PrintConnect, your Android application, and your templates (designed using the ZebraDesigner software) creates a flexible solution that can be used in any industry.

Receipt

A receipt label is defined as a variable length label. One example is in retail stores where each purchased item occupies a separate line on the receipt; hence, the more items purchased, the longer the receipt.

Label

A label is defined as having a fixed length and is utilized in many different industries. One example is in manufacturing where each package moving along a production line has a packing label affixed to the outside of the box. This label may contain a company logo (graphic), company name (fonts and text), and barcode to name some of the fields that appear on a label.

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Installation and Setup

This chapter identifies how to download, setup, and perform a test print.

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Installing PrintConnect and TestConnect

Both, PrintConnect and TestConnect, are available from the Zebra App Gallery, Zebra Launchpad Developer Community, and Click2Demo.

If you're using a Mac, be sure to download the Android File Transfer program to navigate through the files on your device.

Note • If you download the app from anywhere other than the App Gallery, your security setting must be enabled to download and install non-market applications. Follow these steps to enable this function.

a. From the main Settings screen, tap **Security**.

b. Tap **Unknown sources**.

c. A check mark is displayed to indicate it is active.

Installation from the Launchpad Developer Community

This procedure describes how to install PrintConnect and TestConnect from the Launchpad Developer Community.

1. Visit either of the links below and acquire the APK files for each application.

   Launchpad Click2Demo community

   Launchpad Printer community

2. Transfer the APK files to your device.

3. Using a file browser on your device, locate the APK files and tap each one to install the app on your device. Follow the on-screen instructions.

Installation from the App Gallery

This procedure describes how to install PrintConnect and TestConnect from the Zebra AppGallery.

1. On your Zebra mobile computer, launch the AppGallery. Tap the Menu icon and tap the **Login** option.

2. Login to your AppGallery account. To create an account, tap the **Need an Account?** option and complete the Join Now form.
3. After successfully logging in to your account, tap the **CATEGORIES** option.
4. See Figure 3. Scroll and tap **ZEBRA** from the list of categories.

   All available applications from Zebra are listed.

Figure 3 • App Gallery Categories

5. Find and tap **PrintConnect** (or **TestConnect**).
6. Tap the **INSTALL** button.

   You will be notified what access the application requires and asked if you want to install the application.
7. Tap **Next**.
8. Tap **Install**.

   The application will download and install.
9. Tap **Done** to return to the AppGallery or tap **Open** if you wish to launch the app.

To install the TestConnect application, repeat the above steps, and select **TestConnect** from the AppGallery **ZEBRA** categories.

PrintConnect Setup

PrintConnect requires that you set up a connection to a printer.

Printer Discovery Methods

This procedure describes how to use PrintConnect to discover and connect to your printer. There are several ways to do this:

- Tap and Pair with a printer (recommended)
- Manually select your printer

Prerequisites: For successful network discovery, your mobile device should be connected to the same subnet as your printer. For Bluetooth communications, Bluetooth should be enabled on your device and printer. NFC should be enabled to use the Print Touch feature. Refer to the user documentation for your device or printer for further details on configuring the printer and device.

Note • Bluetooth discovery can only retrieve the Friendly Name and MAC Address.

Note • If you encounter issues with printer discovery (and at times PrintConnect may not be able to “discover” your printer), you may need to manually enter your printer’s IP address.

Having your printer and Android device on the same subnet, will give you the greatest chance of successfully discovering the printer.

Tap and Pair

The Near Field Communication (NFC) tag on the Zebra printer and your smartphone or tablet may be used to establish radio communication with each other by tapping the devices together or bringing them into close proximity (typically 10 cm or 3.9 in.) or less.

PrintConnect will acknowledge the start of the tap and pair process, the pairing, and any associated errors, and the successful discovery of the printer.

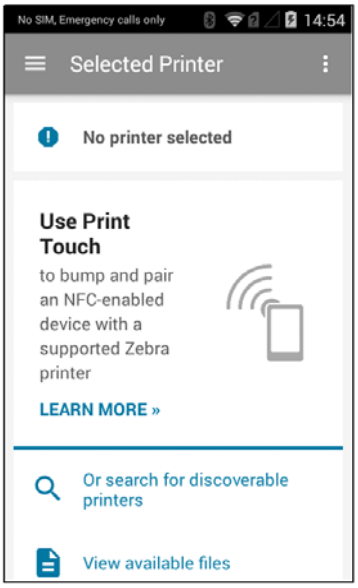
Note • If you do not have Bluetooth enabled on your device, PrintConnect sends a dialog asking if you want to enable it.

Note • If you encounter issues with printer discovery (and, at times, PrintConnect may not be able to "discover" your printer), you may need to manually enter your printer's IP address.

Having your printer and Android device on the same subnet, will give you the greatest chance of successfully discovering the printer.

1. Launch the PrintConnect application on your device. See Figure 4. Upon launching for the first time, it will indicate **No printer selected**.

Figure 4 • PrintConnect Dashboard (First Time Use)



2. The simplest method to setup a connection to your printer with an NFC-enabled device is to use the Print Touch feature on printers that support Print Touch. See Figure 5. Printers supporting Print Touch will have this icon on the outside of the printer.

Figure 5 • Print Touch Icon

3. To connect to the printer, ‘tap’ the device against the Print Touch icon on the printer. PrintConnect will find and connect to the printer as shown in the images below. See Figure 6 and Figure 7.

Note • If your printer has both, Bluetooth and network connections enabled, PrintConnect will pair via the network.

Figure 6 • Bluetooth Connection

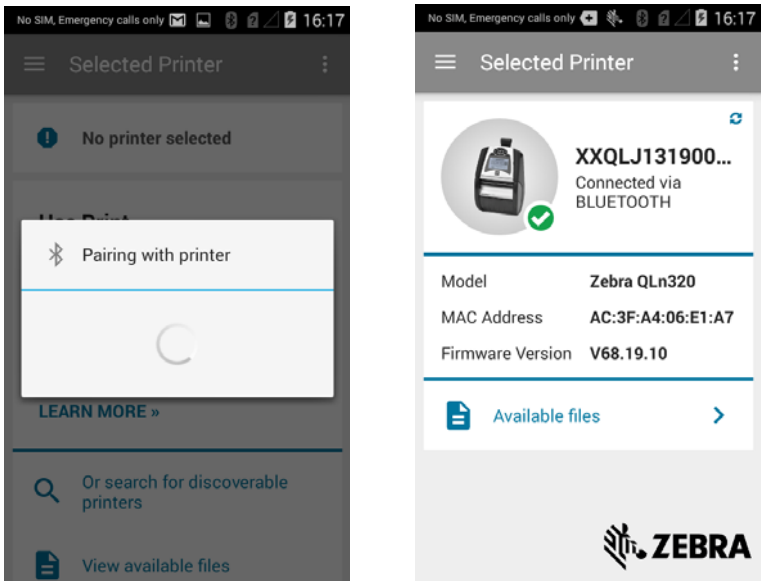
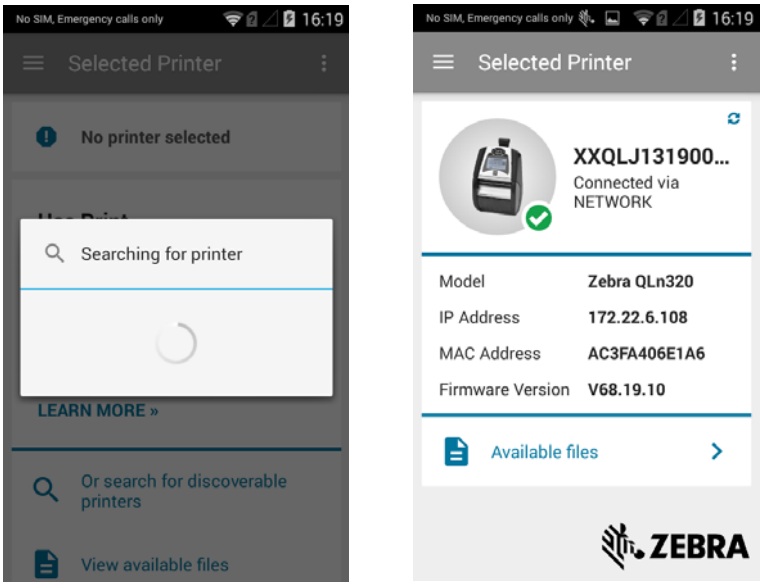


Figure 7 • Network Connection



Discovered Printers

1. To discover printers without using Print Touch, tap the Menu icon ☰ on the dashboard to display the **Select Printer** menu.
2. Tap the **Discovered Printers** option.

   PrintConnect will search and display a list of discovered Bluetooth and network connected printers.
3. Tap the desired printer in the list.

   PrintConnect will find and connect to the printer as shown in either Figure 6 and Figure 7 on page 26, depending on your network connection.
   See Figure 8 on page 27. PrintConnect is now successfully associated with your printer.

Figure 8 • Successful Tap and Pair Notification

1	Successful pairing and discovery notification

Manual Select and Add a Printer

To add a printer using Manual Select, perform the following:

1. Open the Dashboard.
2. Tap the Menu icon ☰ to open the Side Drawer.
3. Tap **Add a Printer**.
4. Enter the printer's DNS or IP address.
5. Tap **Select** to begin the discovery.

Performing a Test Print

This procedure describes how to perform a test print using TestConnect. Once PrintConnect is successfully associated with your printer, TestConnect can be used to test the PrintConnect setup with your printer.

Note • TestConnect can only be used with the PrintConnect application.

To print a shelf label (or a receipt), perform the following:

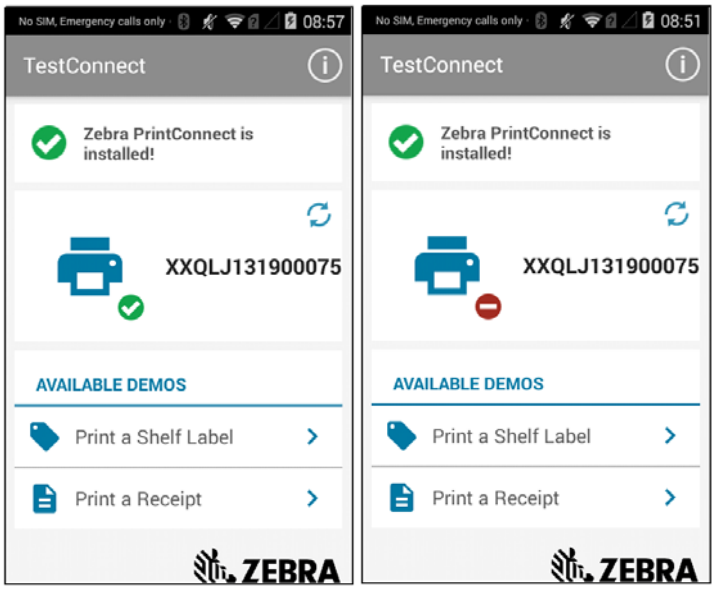
1. See Figure 9. Launch TestConnect.

Note • You must have a printer selected. To select a printer, refer to Tap and Pair on page 68.

The following information is displayed on the TestConnect dashboard:

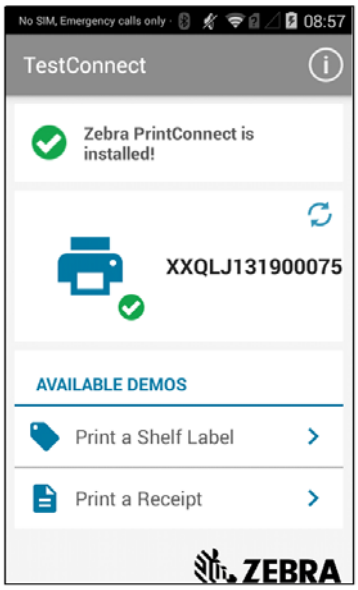
- Whether PrintConnect is installed.
- If a printer is associated with PrintConnect.
  - indicates the printer is ready to print.
  - indicates the printer is not ready to print.
- Available demos.

Figure 9 • TestConnect Dashboard



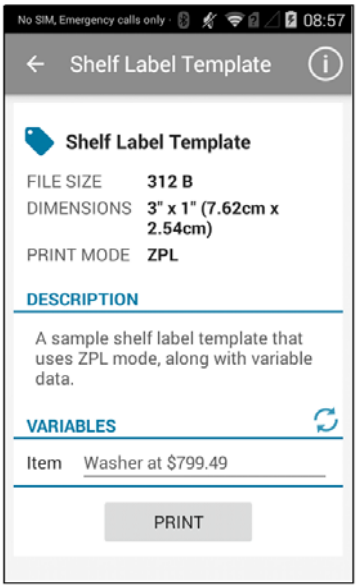
2. See Figure 9. With the printer ready to print, tap **Print a Shelf Label** (or **Print a Receipt**).

Figure 10 • Print a Shelf Label



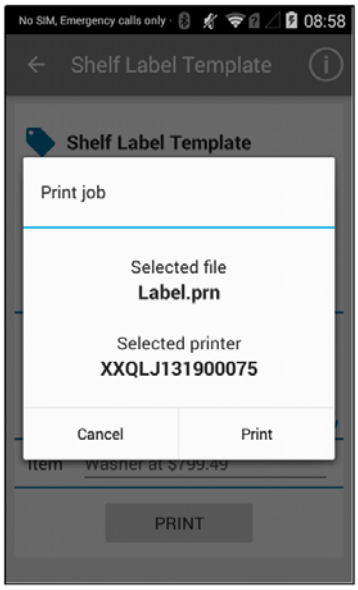
The Shelf Label template box opens (Figure 11).

Figure 11 • Shelf Label Template Box



3. See Figure 12. Tap **Print** to open the print job dialog box.

Figure 12 • Print Job Dialog Box

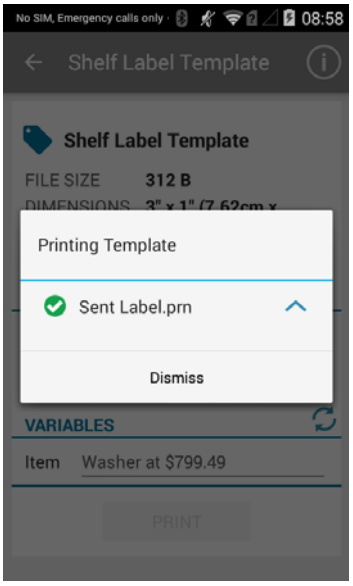


4. Tap **Print** to print the shelf label or **Cancel** to close the dialog box.
   A label prints similar to the one shown in Figure 13.

Figure 13 • Sample Shelf Label

5. See Figure 14. Tap **Dismiss** to close the Printing Template dialog box.

Figure 14 • Printing Template Dialog Box



6. Tap the icon to view the variable information on other available labels. Repeat steps 3-6 to print labels with different information.

Note • The variable information is pre-programmed and cannot be changed.

Notes •

Cloud Storage

This chapter outlines how to set up cloud storage, test print the template, and provides tips and tricks for it.

Contents

Setting Up Cloud Storage 34
Test Print the Template. 41
Tips and Tricks for Cloud Storage 42
Path for Local and Cloud Storage 42
Cloud Storage 42
Refresh Cloud Files 42

Setting Up Cloud Storage

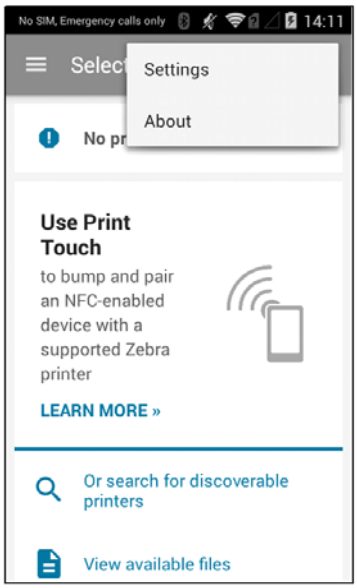
This procedure describes how to configure your Cloud storage account in PrintConnect. This enables you to store template files in your Dropbox or Box Cloud storage account and download them to your device for use with PrintConnect. An Internet connection is required on the device in order to configure your Cloud storage account.

This procedure uses a Box storage account. The same procedure can be used to configure your Dropbox account.

To identify where your customized templates are stored on the cloud, perform the following:

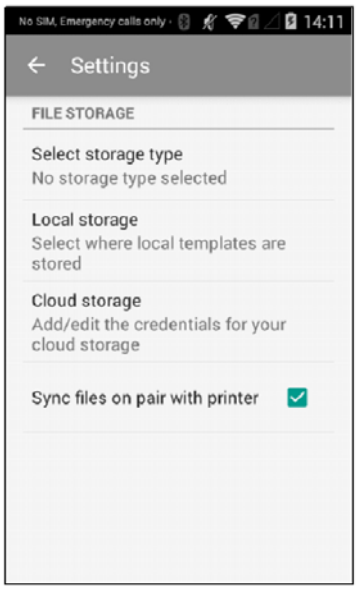
1. Launch **PrintConnect**.
2. See Figure 15. From the **Dashboard**, tap the Overflow icon ⋮.

Figure 15 • Dashboard and Settings Overflow Menu



3. See Figure 16. Tap **Settings** to display the **Settings** menu.

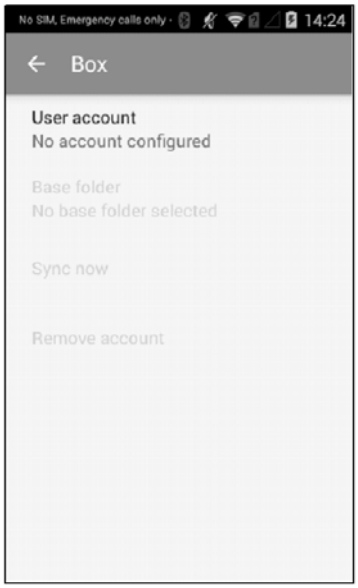
Figure 16 • Settings Screen



4. See Figure 18. Tap the **Cloud storage** option to open the Cloud account screen. Tap either the **Dropbox** or **Box** option to open the user account configuration screen.

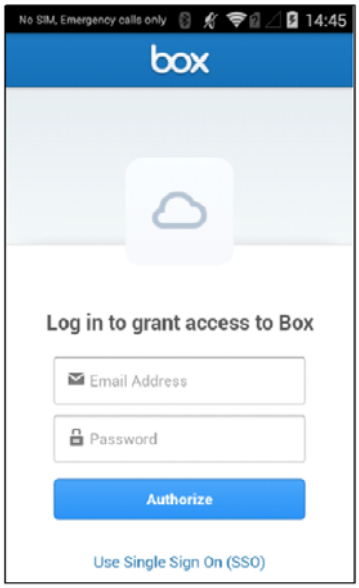
Note • The Cloud storage option will be disabled if the device has no Internet connectivity.

Figure 17 • Cloud Account Screen



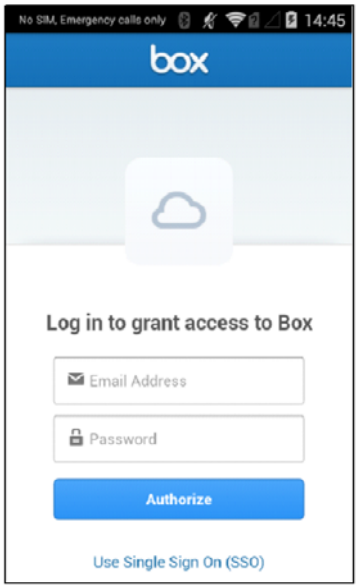
5. See Figure 18. Tap the **User account** option to display the login screen for your Cloud storage account. The default authentication method is Email Address and Password. To use Single Sign On, tap the **Use Single Sign On (SSO)** option.

Figure 18 • Cloud Login Screen



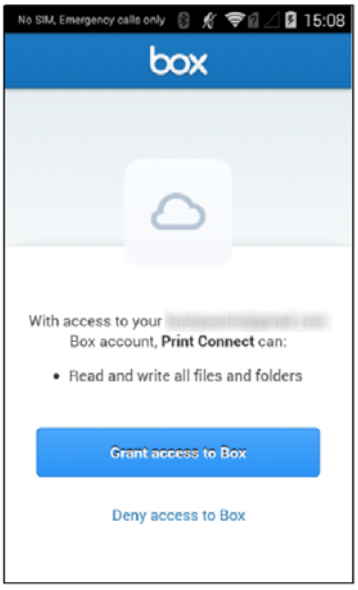
6. See Figure 19. Enter your login credentials and tap **Authorize**.

Figure 19 • Box Login



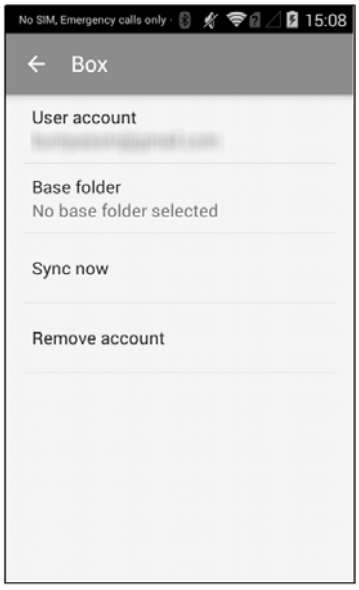
7. See Figure 20. You will be prompted to grant PrintConnect with access to read and write to files and folders. Tap **Grant access to Box**.

Figure 20 • Grant Access to Box Account



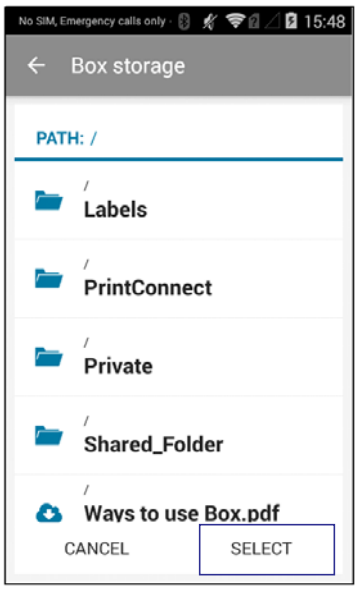
8. See Figure 21. Tap the **Base folder** option to open the storage path screen.
   The folders in your Cloud storage account will be displayed.

Figure 21 • Cloud Account Screen



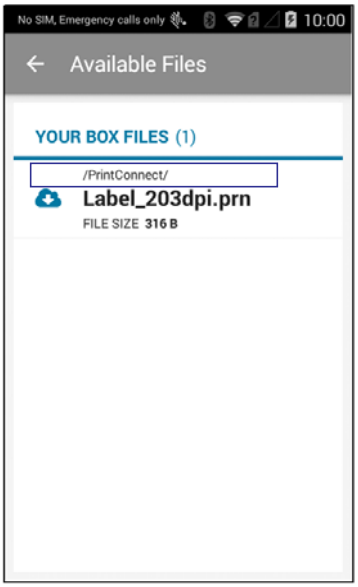
9. See Figure 22. Tap the folder where your template files will be stored. In this example, the PrintConnect folder is selected in our account.

Figure 22 • Box Storage



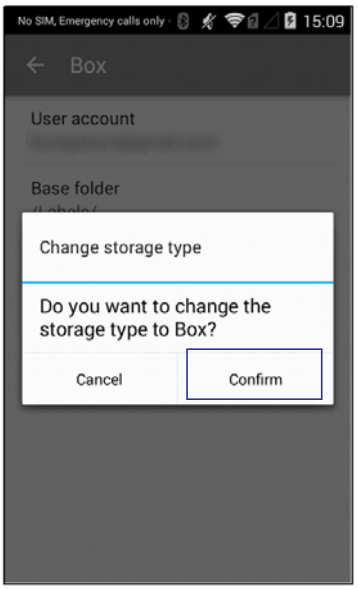
10. See Figure 23. Tap the **SELECT** button to confirm and set your folder selection.

Figure 23 • Available Box Files



11. See Figure 24. You will be prompted to change the storage type to **Box** or **Dropbox**. Tap **Confirm** to continue.

Figure 24 • Change Storage Type Dialog Box



The Cloud account screen will now show your account email address and the base folder you selected.

12. Tap the back button until you return to the **Selected Printer** screen.

13. Tap the **Available files** option.

    The files stored in the base folder selected in step 9 will be displayed.

    The icons displayed next to each file indicate the following:

    - Requires downloading.
    - Already downloaded.
    - A newer version of the file exists and requires synchronizing.

    Tap the cloud icon next to a file name to download it.

    The icon will change from to indicating the file has been downloaded.

    If the file on your cloud storage site is newer than the one on the device, the icon will be displayed next to the file name. Tap the icon to update your device and use the newer version of the file.

Test Print the Template

To test print the template, perform the following:

1. Press and hold (a.k.a. long press) the file downloaded in step 13 to open the Print job dialog. Tap the **Print** button to perform a test print of the template.

Tips and Tricks for Cloud Storage

Path for Local and Cloud Storage

Setting up the path on local storage and cloud storage work the same way for both types of storage. They are set up in the Settings section of the app.

Within PrintConnect, you may have multiple copies of the same file name. Because of this, there are several strategies for setting up your file path.

- Set the path at a higher sub-directory (where higher is the root or single letter directory, and lower are the sub-directories stored under the root directory). Using this strategy, you depend on the app file search to return the correct template.

  HINT: If you want to guarantee the right template is returned, every template needs a unique name.

- Set the path at a higher sub-directory (where higher is the root or single letter directory, and lower are the sub-directories stored under the root directory). You may use this strategy if you know your directory structure and pass the sub-directory path and file name to the Intent.
- Set the path at a lower sub-directory (where higher is the root or single letter directory, and lower are the sub-directories stored under the root directory). If you have a Test and Production environment with a directory structure to match, you might set your path to the Test folder to pull the templates from here until they are moved into the Production folder and environment.

Cloud Storage

Keep in mind that if you have PrintConnect set to Cloud Storage, you must have an Internet connection to view your available files. If you lose the connection, your files stored on the cloud will not appear in the View Available Files list; only your locally stored files will be shown.

All files downloaded from the Cloud are stored in the application Data Storage, and is not accessible through the Android file system.

Refresh Cloud Files

There are three ways to refresh or download your cloud files:

- Tap the **Refresh icon** beside the file to begin the file's download.
- From the **Settings Screen** > **Cloud Storage** > Select your account, tap **Synch Now**.
- From the Settings Screen, check the box **Synch files on pair with printer**: This setting will synch **all** cloud files.

Customizations

This chapter provides instructions to design and customize your templates using ZebraDesigner, print the new template with TestConnect, and other ways to create your own solution.

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Download and Install ZebraDesigner 44
Download the Sample Template 44
Modify the Template File in ZebraDesigner 45
Print the Modified Template using TestConnect 51
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Customizing Your Templates

This section describes how to use ZebraDesigner, our label design application to modify the Shelf Label sample template, transfer the modified template to your device, and use TestConnect to print it.

Download and Install ZebraDesigner

This procedure describes how to download and install the ZebraDesigner software.

1. The ZebraDesigner software may be downloaded from our website.

   Click here to open the download screen.

2. Click the download link.

   You will be directed to the End User License Agreement.

3. To download the software, you must review and agree to the terms of the End User License Agreement.

   If you agree, click **ACCEPT AND BEGIN DOWNLOAD NOW**.

4. Double-click the downloaded software file to start the installation wizard.

   Follow the on-screen instructions to complete the ZebraDesigner installation.

Download the Sample Template

This procedure describes how to acquire the Shelf Label template that you will modify in the ZebraDesigner software.

The sample label and receipt templates used in PrintConnect were designed using the ZebraDesigner software and have been made available for download from a Cloud storage site.

1. Click here to open the Cloud storage site in a browser. You should see two folders:

- Demo Label
- Demo Receipt.

2. Click the **Demo Label** folder.

3. Click the **ZebraDesigner Templates** folder.

4. See Figure 25. Click the Download link next to the **Label_203dpi.lbl** file.

Figure 25 • Label and Download Link

5. Note the location of the downloaded file as this is the template file that will be modified in ZebraDesigner in the next section.

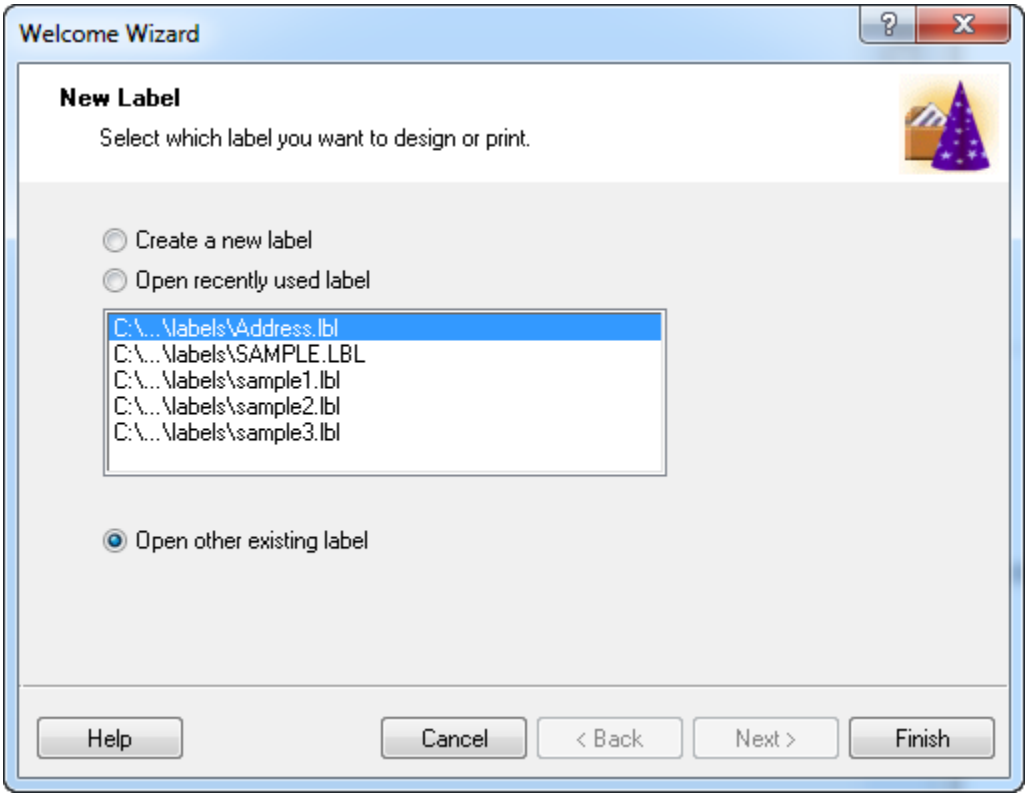
Modify the Template File in ZebraDesigner

This procedure describes how to open the label file in ZebraDesigner and make a simple modification to it. It will then be transferred to your device for use with PrintConnect.

1. First, it is necessary to install the Windows printer driver that was used in the design of the template.
   a. From the Start menu, navigate to the Zebra Technologies program group.
   b. Launch **Printer install** from the ZebraDesigner 2 folder.
   c. If required, click **yes** on the User Account Control dialog.
      The printer installation wizard will be displayed.
2. Click **Next**.
3. Click **Install Printer**.
4. From the list of printers, select **ZDesigner ZT410-203dpi ZPL,** and click **Next**.
5. In the available ports list, select **FILE:** and click **Next**.
6. **Uncheck** all boxes on the **Additional Install Options** dialog and click **Finish**.
   The driver installation will complete and the installation wizard will close automatically.
7. From the **Start** menu, navigate to the Zebra Technologies program group, and launch **ZebraDesigner 2** from the ZebraDesigner 2 folder.
   The Welcome Wizard will be displayed.

8. See Figure 26. Select the **Open other existing label** option and click **Finish**.
   The Open dialog will be displayed.

Figure 26 • New Label



9. Navigate to the location of the template file that was downloaded in the previous section. Select the **Label_203dpi.lbl** file and click **Open**.

10. See Figure 27. The template file is now displayed in ZebraDesigner.

a. You will add a fixed text “company name” field to the template.

b. To create space on the label for this new field, first highlight the var_price field and press the down arrow on your keyboard to move the field down.

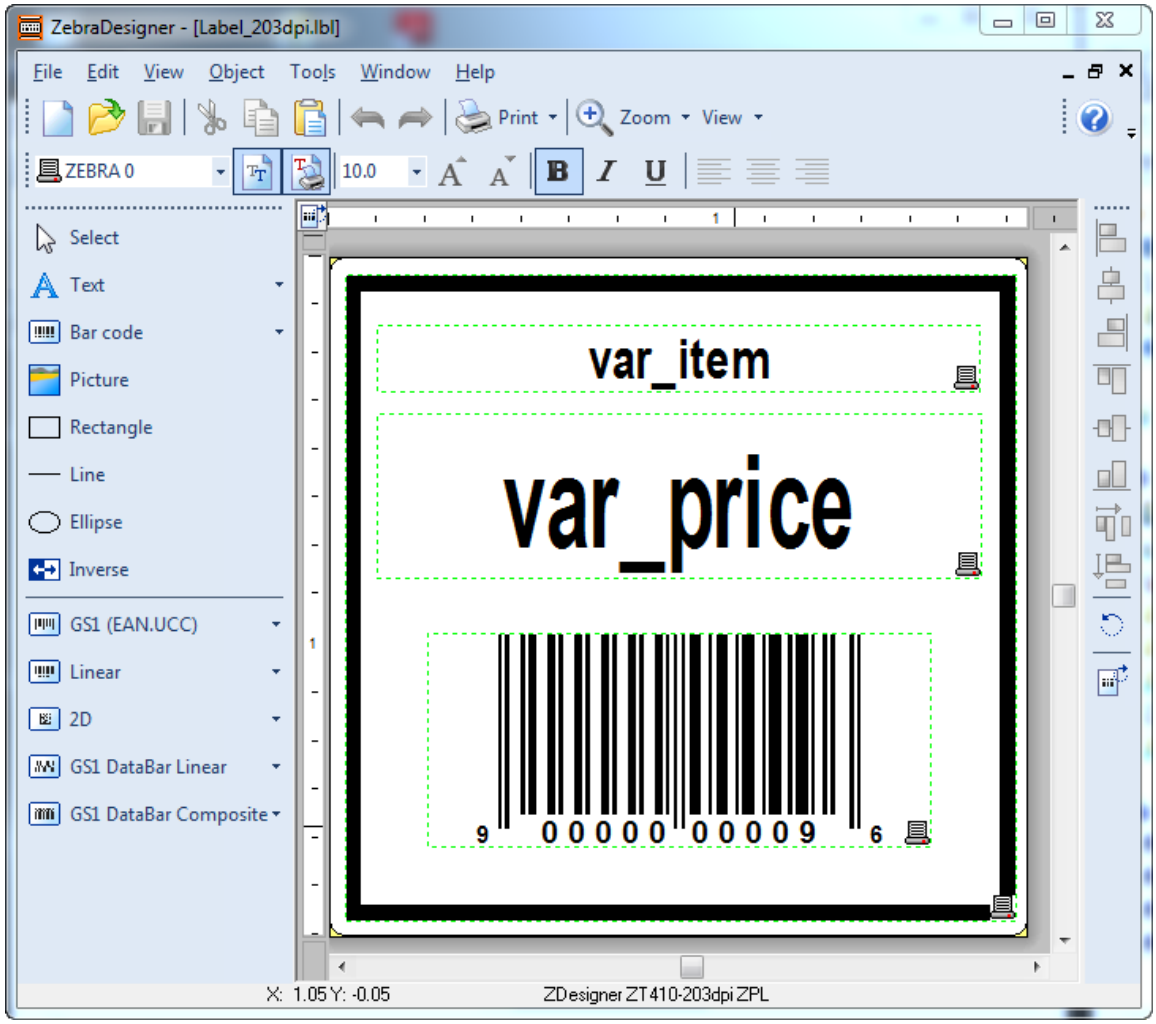
c. Next, perform the same procedure on the var_item field. There should now be space at the top of the template for a new text field.

Note • The TestConnect application uses the variable names var_item, var_price and var_upc. As you will use TestConnect to test the modified template, these field names should not be changed.

Note • ZebraDesigner validates user input for barcode fields so it is not possible to use a text based field name for a numeric barcode type. It will be necessary to modify the output file to include the text based variable name for any barcode fields.

Note • Since PrintConnect uses a search and replace technique, it is recommended that variable field names contain a unique prefix such as var_ to distinguish between fixed text fields and variable names to prevent accidental replacement of fixed text.

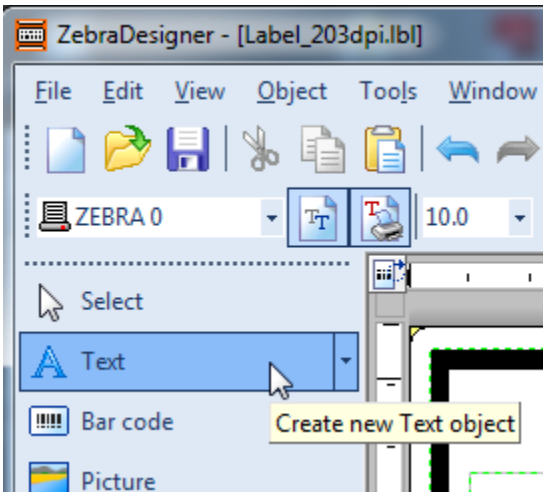
Figure 27 • ZebraDesigner and the Template File



11. See Figure 28. Click the **Create new Text object** option, and click in the space created at the top of the template.

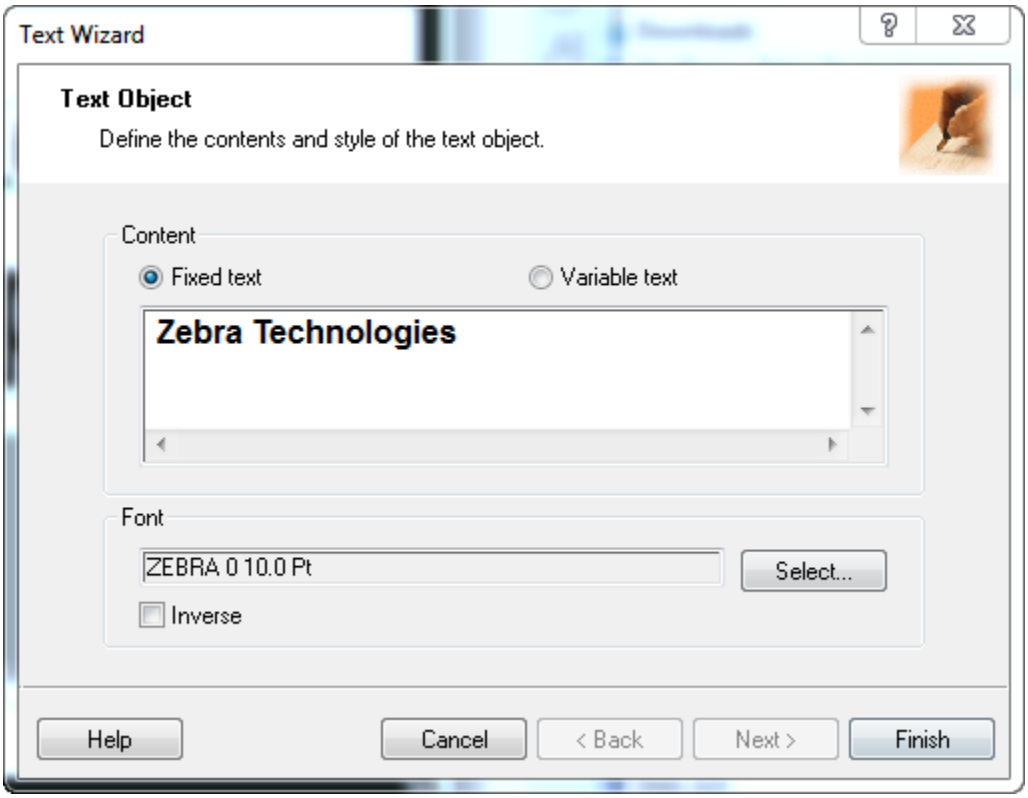
    The Text Wizard will be displayed.

Figure 28 • ZebraDesigner



12. See Figure 29. Enter your company name or some other text in the Content area and click **Finish**.

Figure 29 • Text Wizard



13. See Figure 30. Adjust the position of the text field as necessary. To center the field relative to the label, press and hold the **CTRL** key and click the **Center** button on the alignment toolbar.

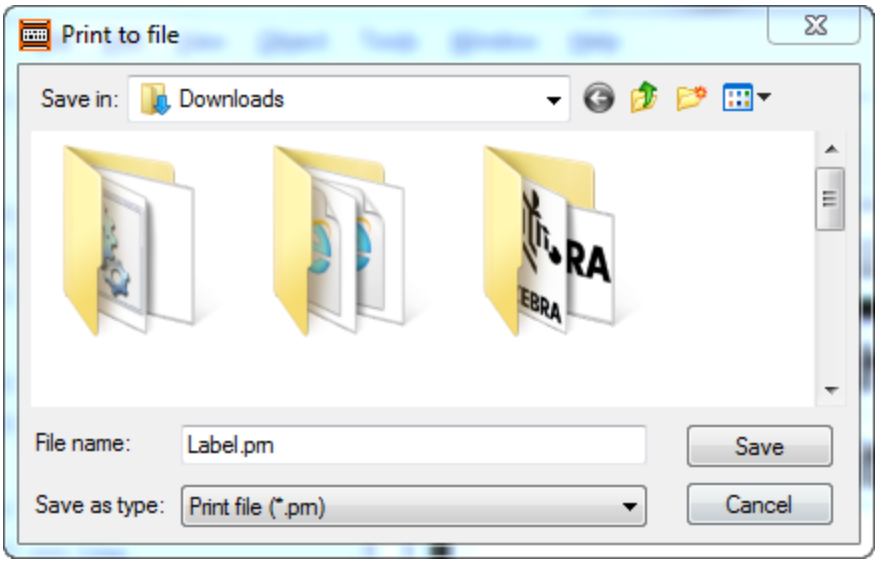
Figure 30 • Alignment Toolbar

14. Click **Save** to save the changes to the label.
15. Click the **Print** button in the toolbar to display the Print dialog.
16. Select the **Print to file** option and click **Print** to open the **Print to file** dialog (See Figure 31).
17. Change the file name to Label.prn and click **Save** to save the file on your computer.

Note • To test the modified template with TestConnect, use the Label.prn file name.

Note • The .prn file types created by ZebraDesigner contain ZPL printer command language and are for use with PrintConnect. The .lbl files cannot be used with PrintConnect and are solely for use with ZebraDesigner.

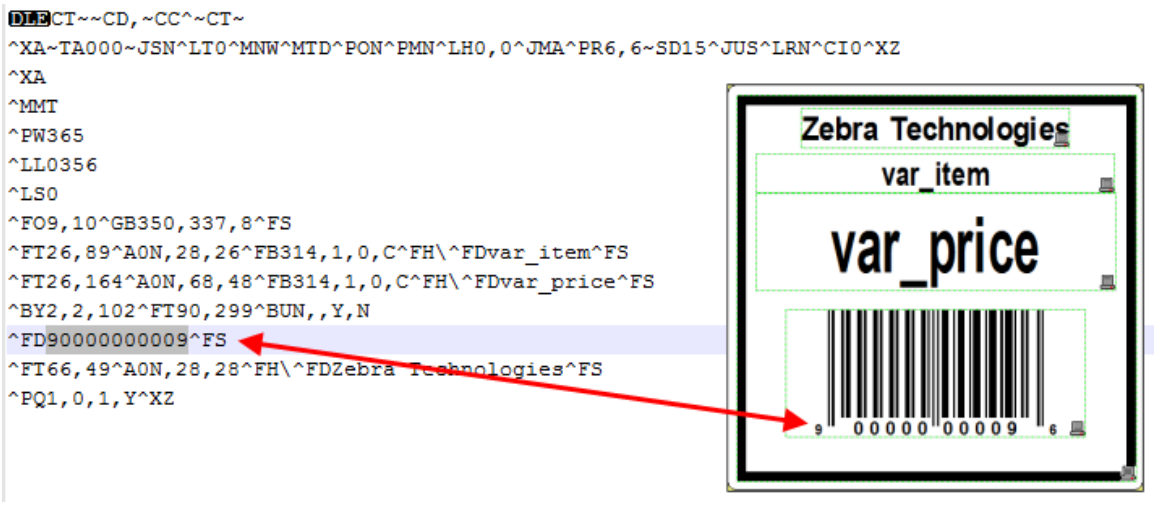
Figure 31 • Print to File Dialog Box



18. See Figure 32. As previously mentioned, it is necessary to modify the barcode variable field name in the output. In a text editor, open the saved Label.prn file.

19. Locate the text that represents the barcode data in the template design. Replace **90000000009** with **var_upc**.

Figure 32 • Text Editor and Label.prn File



Modified file (See Figure 33):

Figure 33 • Text Editor and Modified Label.prn File

```
DLECT~~CD,~CC^~CT~
^XA~TA000~JSN^LT0^MNW^MTD^PON^PMN^LH0,0^JMA^PR6,6~SD15^JUS^LRN^CI0^XZ
^XA
^MMT
^PW365
^LL0356
^LS0
^FO9,10^GB350,337,8^FS
^FT26,89^A0N,28,26^FB314,1,0,C^FH\^FDvar_item^FS
^FT26,164^A0N,68,48^FB314,1,0,C^FH\^FDvar_price^FS
^BY2,2,102^FT90,299^BUN,,Y,N
^FDvar_upc^FS
^FT66,49^A0N,28,28^FH\^FDZebra Technologies^FS
^PQ1,0,1,Y^XZ
```

20. Save the changes to the file.

Print the Modified Template using TestConnect

This procedure describes how to print the modified template using TestConnect and PrintConnect. This procedure uses the local storage type in PrintConnect. Although, you may upload the Label.prn file to your cloud storage site, and use the method described in the Setting Up Cloud Storage on page 34 to establish the path to your cloud files. Refer to your Cloud storage site documentation on how to upload files to your Cloud storage site.

1. Connect your device to your computer and transfer the Label.prn from the computer to the device.

   It is recommended to transfer the file to the Download folder. Refer to your device documentation for further details on transferring files.

2. See Figure 34 and Figure 35. Launch **PrintConnect.** Tap the ⋮ icon, and then tap **Settings** to display the **Settings** menu.

Figure 34 • Settings Screen

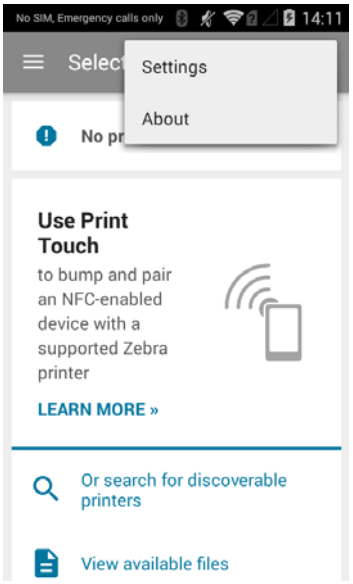
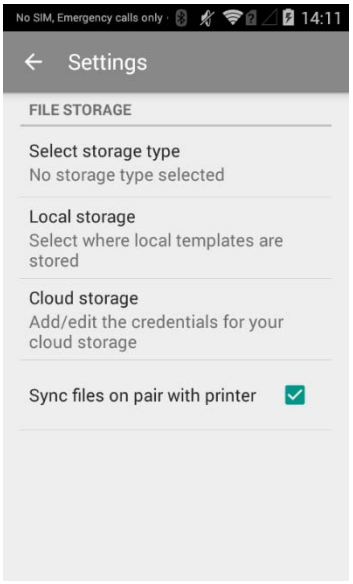


Figure 35 • Settings Menu

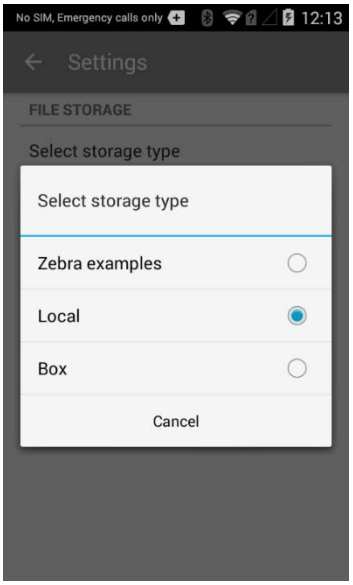


3. See Figure 36. Tap the **Select storage type** option to open the **Select storage type** dialog.

4. Tap the **Local** option.

   The Local storage option will be set and the dialog will close automatically.

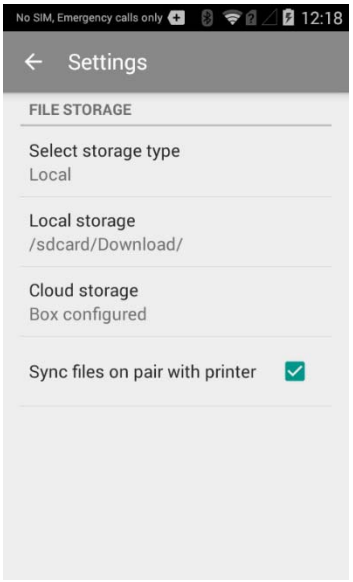
Figure 36 • Select Storage Type Dialog Box



5. See Figure 37. Tap the **Local storage** option. Navigate to and tap the Download folder. Tap the **SELECT** button.

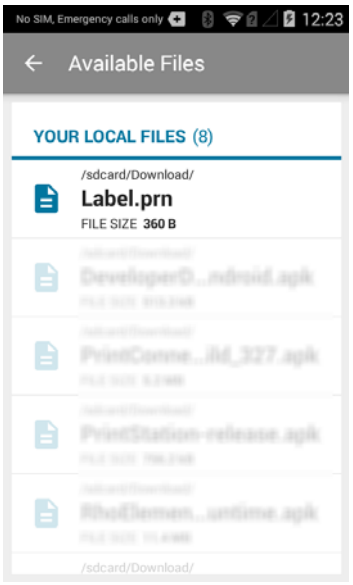
   The **Settings** screen should show the storage type as Local and Local storage as /sdcard/Download.

Figure 37 • Settings Screen



6. See Figure 38. Tap the **Back** button. On the Dashboard, tap the **Available files** option, and verify the Label.prn file is displayed from the /sdcard/Download/ folder.

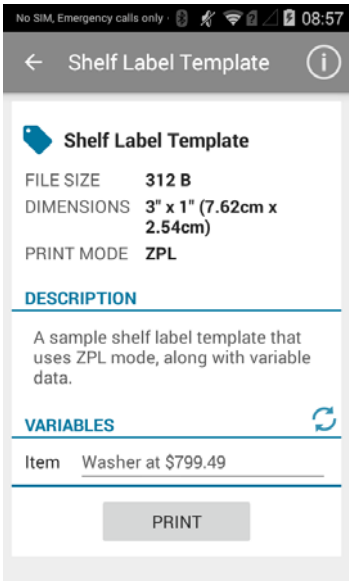
Figure 38 • Available Files



7. Ensure your printer is in a ready to print state and launch **TestConnect**.

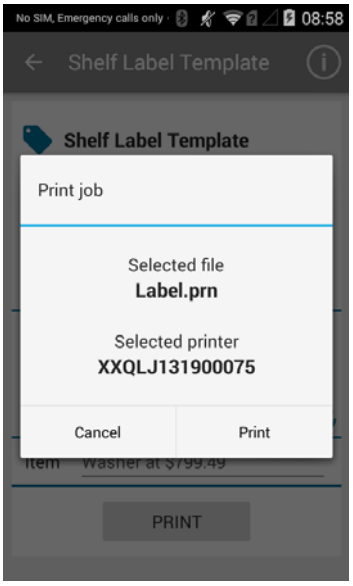
8. See Figure 39. Tap the **Print a Shelf Label** option.

Figure 39 • TestConnect Print a Shelf Label



9. See Figure 40. Tap the **PRINT** button to open the Print job dialog.

Figure 40 • Print Job Dialog Box

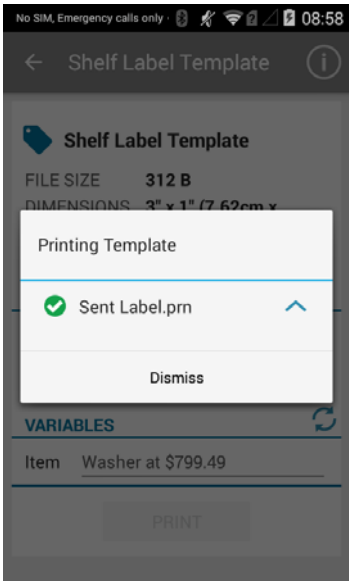


10. See Figure 41. Tap the **Print** button. The label should print and now include the company name or text you added to the template.

Figure 41 • Sample Shelf Label

11. See Figure 42. Tap **Dismiss** to close the **Printing Template** dialog.

Figure 42 • Printing Template Dialog Box



12. Tap the **Refresh** icon to change the variable information. Repeat steps 9-12 to print labels with different information.

Create Your Own Solution

To create your own solution, perform the following:

1. Review Intents on page 87 and the code examples. Template printing using PrintConnect is accomplished by sending intents to PrintConnect. The Intents chapter provides details on PrintConnect's package name, intent names, and their extra key information.
2. Create your own template using ZebraDesigner based on tasks performed in the Modify the Template File in ZebraDesigner on page 45 and Print the Modified Template using TestConnect on page 51. Tutorial videos are available here on how to use the features of ZebraDesigner. Click on the **Software Tutorials** tab.
3. Make your new template available to PrintConnect by transferring it to your mobile device as described in Setting Up Cloud Storage on page 34.
4. Based on the code examples shown in Intents on page 87, implement code in your application to use the PrintConnect printing service to print your new template.

Support

If you need further assistance, Zebra's ISV team is available to help.

Join Zebra's ISV program to get access to the PrintConnect source code and further develop the application to suit your needs.

Click here for more information and to join Zebra's ISV program.

Notes •

PrintConnect

This chapter describes the screens, notifications, and error messages of PrintConnect.

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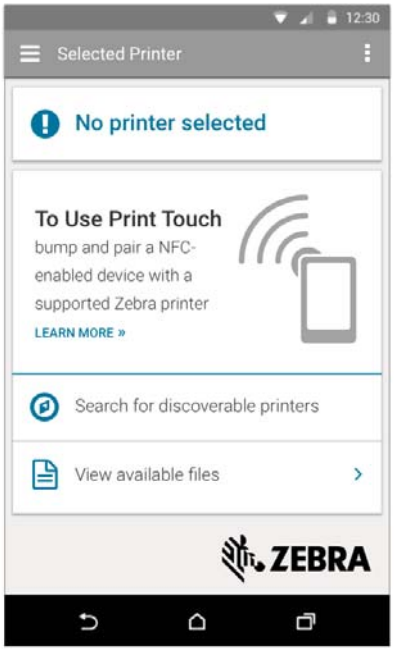
PrintConnect Screens

This section details the PrintConnect screens. Additional items include Settings, About, and File Storage. You may manage your printers via smartphone or tablet. You may view PrintConnect screens in either portrait or landscape orientation on your tablet only. (Your smartphone displays screens in portrait only.)

Once the app is downloaded, the app opens to the Dashboard screen. Since this is the first time you have used the app, there is no printer selected.

Figure 43 • Dashboard (First Time Use)

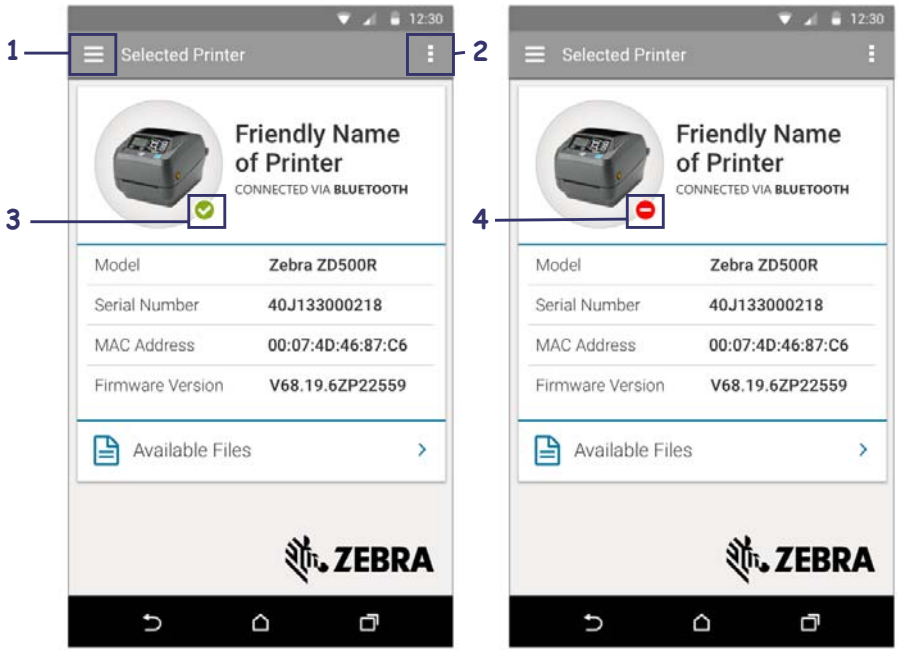


Dashboard

The Dashboard displays the selected printer's connection and basic information. Other options available on this screen include:

- Tap point for the Side Drawer ☰
- Tap point for **About** and **Settings** dialog boxes (⋮)
- Printer is ready to print icon.
- Printer is not ready to print.

Figure 44 • Dashboard



1	Menu icon	2	Overflow icon
3	Ready to print icon (green checkmark)	4	Unable to print icon (red minus sign)

Available Files

If you click on **Available Files**, a list of files is displayed. From this list, if you press and hold (a.k.a. long press) on a file name, PrintConnect confirms that it:

- Is paired with a printer.
- Is successfully communicating with the printer.
- Is able to print or has printed a file.

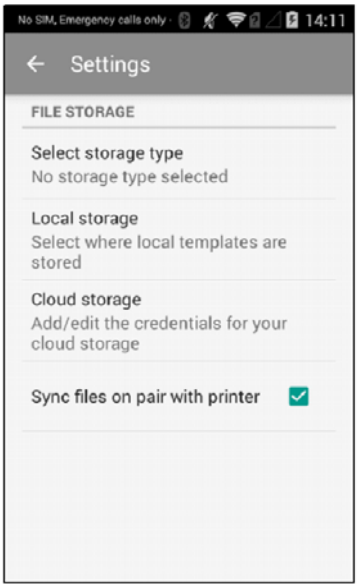
The long press works on files stored on your device (Local) and in the cloud.

Note • View Available Files is only available on a smartphone. This feature is not available on a tablet.

Settings

The Settings menu sets up where your templates will be stored: PrintConnect embedded templates, your device local templates, or cloud templates.

Figure 45 • Settings

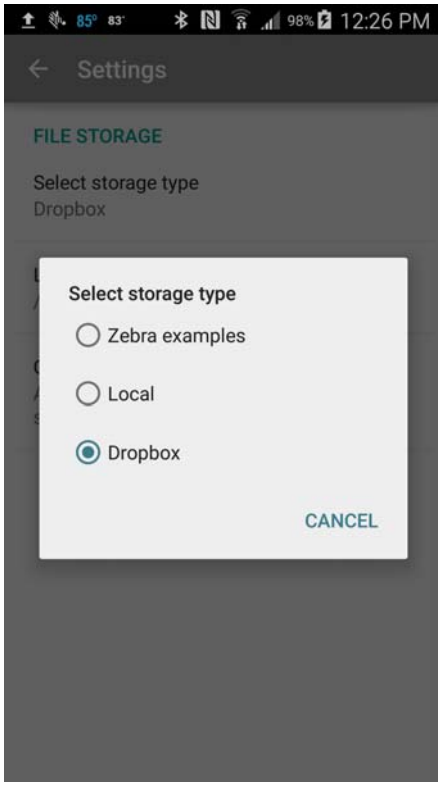


To change your storage Settings, perform the following:

1. Click the overflow icon ⋮ to open the **Settings** menu and tap it.

2. From the Settings screen, tap **Select storage type**.

Figure 46 • Select Storage Type Screen



- Click the radio button next to your storage type:
  i. **Zebra examples**: Embedded Zebra templates included in PrintConnect.
  ii. **Local**: Templates stored in the internal storage or memory card on your device.
  iii. **Dropbox**: Your customized templates to be downloaded and synched with your device.

  The Select Storage Type screen closes and the Settings screen opens.

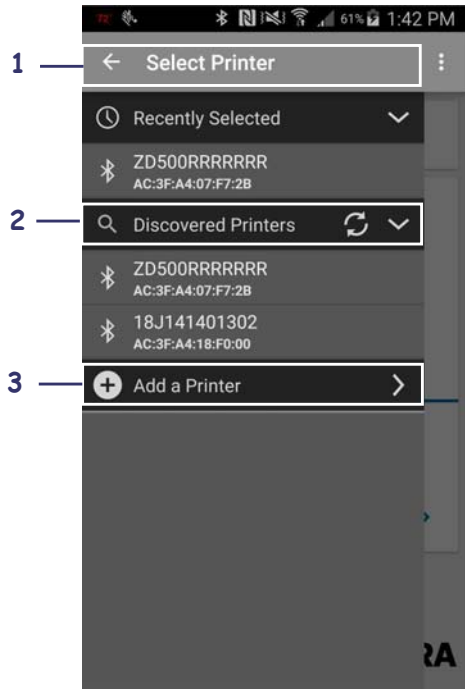
3. From the Settings screen, tap **one** of the following:
   a. **Local storage**: Navigates and creates a path to the files on your SD card.
   b. **Cloud storage**: Navigates and creates a path to your files on your cloud account.
      i. Select your cloud account (Dropbox or Box).
      ii. Tap **Base folder**.
      iii. Navigate to your cloud storage base folder.
      This is the location or a folder within your cloud account that holds your customized template files.
4. Click **Select** to save the path or **Cancel** to return to the previous menu.

Note • Keep in mind that if you have PrintConnect set to Cloud Storage, you must have an Internet connection to view your available files. If you lose the connection, your files stored on the cloud will not appear in the list, and only your locally stored files will be shown.

Side Drawer

The Side Drawer slides out from the left of the Dashboard and opens when you tap the Menu icon. This screen contains sections to show the last three recently selected printers, other printers that you may wish to pair with, and the Add a Printer section to manually select a printer.

Figure 47 • Side Drawer



1	Recently Selected section
2	Discoverable Printers
3	Add a Printer

Recently Selected

This group shows up to the last three printers selected.

Discoverable Printers

To discover printers, perform the following:

1. From the Dashboard, tap the Menu icon.
2. Open the **Discovered Printers** group.

   At the completion of the discovery, the Discovered Printers group is updated. Progress pop-up screens are displayed during the discovery process.

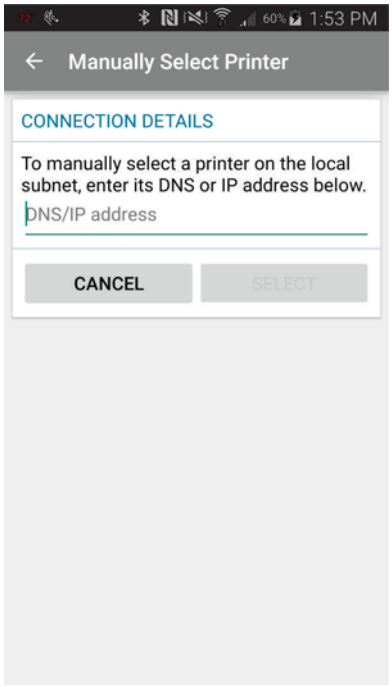
Add a Printer

Redirects to Add a Printer screen. See Add a Printer Screen on page 67.

Add a Printer Screen

This section allows you to manually add a printer.

Figure 48 • Add a Printer



To manually add a printer, perform the following:

1. From the Side Drawer screen, tap **Add a Printer**.
2. Enter the printer's IP address or DNS name.
3. Tap **Select**.

   If a successful connection is made to the printer, the Dashboard opens with the printer selected and displays the printer's basic information. If the connection fails, an error message is displayed.

Printer Discovery Methods

PrintConnect requires that you set up a connection to a printer. For the specific details, procedures, and methods, see Printer Discovery Methods on page 24.

Prerequisites: For successful network discovery, your mobile device should be connected to the same subnet as your printer. For Bluetooth communications, Bluetooth should be enabled on your device and printer. NFC should be enabled to use the Print Touch feature. Refer to the user documentation for your device or printer for further details on configuring the printer and device.

Note • Bluetooth discovery can only retrieve the Friendly Name and MAC Address.

Note • If you encounter issues with printer discovery (and at times PrintConnect may not be able to "discover" your printer), you may need to manually enter your printer's IP address.

Having your printer and Android device on the same subnet, will give you the greatest chance of successfully discovering the printer.

Tap and Pair

The Near Field Communication (NFC) tag on the Zebra printer and your smartphone or tablet may be used to establish radio communication with each other by tapping the devices together or bringing them into close proximity (typically 10 cm or 3.9 in.) or less.

For the specific details, procedures, and methods, see Tap and Pair on page 25.

PrintConnect will acknowledge the start of the tap and pair process, the pairing, and any associated errors, and the successful discovery of the printer.

Note • If you do not have Bluetooth enabled on your device, PrintConnect sends a dialog asking if you want to enable it.

Note • If you encounter issues with printer discovery (and, at times, PrintConnect may not be able to "discover" your printer), you may need to manually enter your printer's IP address.

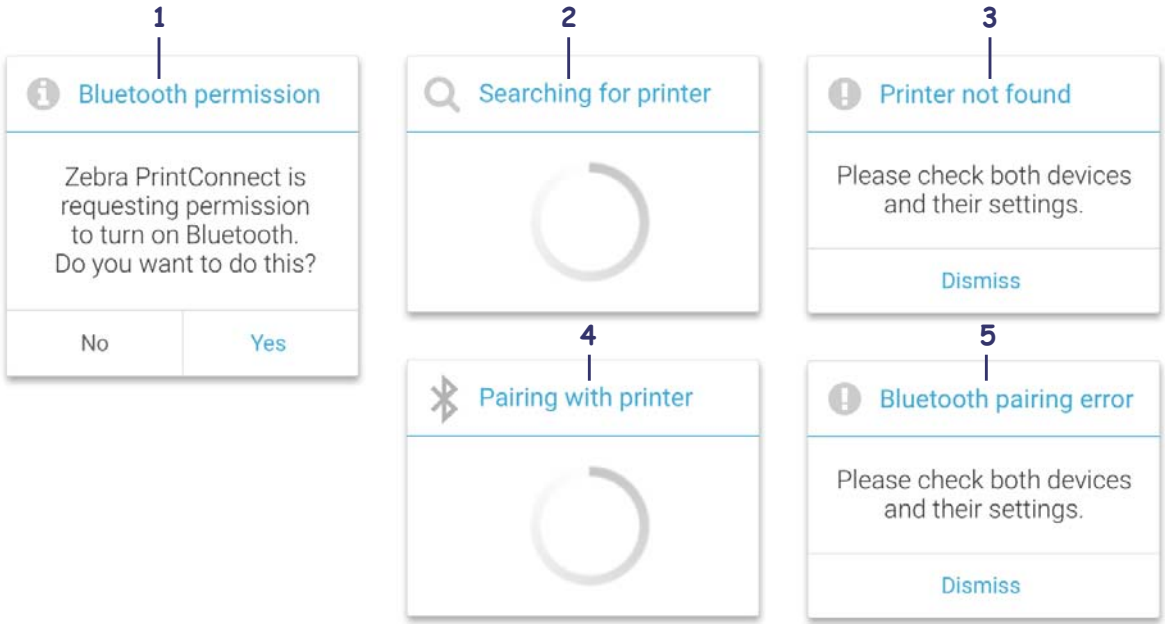
Having your printer and Android device on the same subnet, will give you the greatest chance of successfully discovering the printer.

Note • If your printer has both, Bluetooth and network connections enabled, PrintConnect will pair via the network.

Tap and Pair Notifications and Error Messages

All notifications appear in the notification tray, the pull-down tray at the top of your device screen. Error messages will pop up over the app similar to a dialog box.

Figure 49 • Tap and Pair Notifications and Error Messages



1	Bluetooth permission notification (only appears if Bluetooth is **not** turned on)	4	Pairing with the printer notification (shown during the discovery process)
2	Searching for printer notification (shown at the start of the discovery process)	5	Bluetooth pairing error message
3	Printer not found error message		

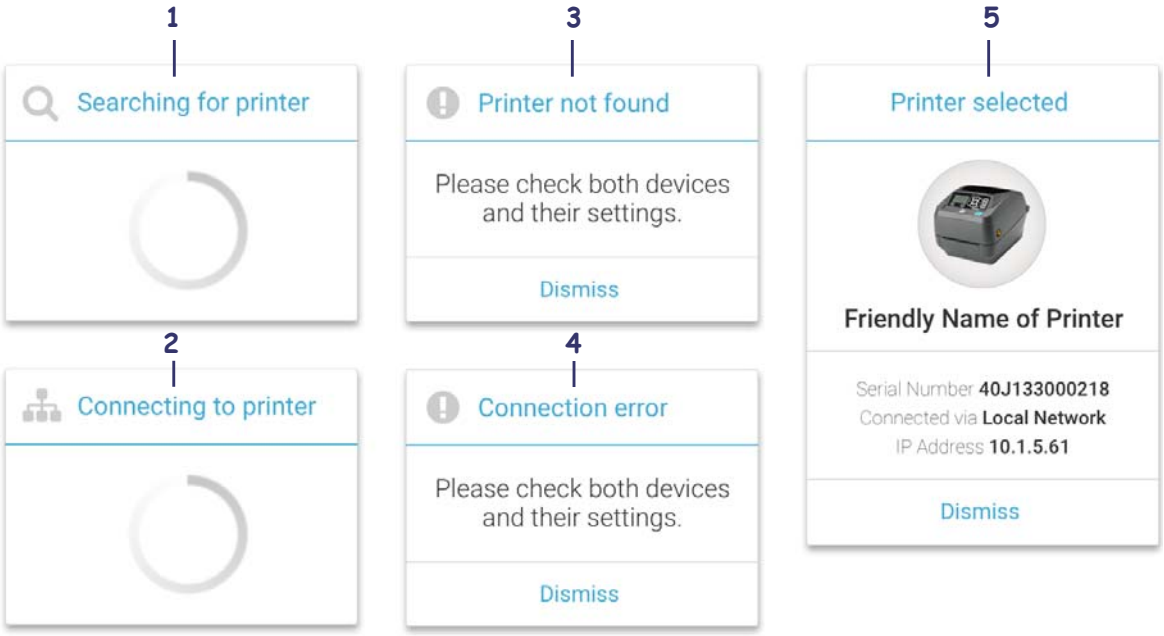
Manual Select

For the specific details, procedures, and methods, see Manual Select and Add a Printer on page 27.

Manual Select Discovery Notifications and Error Messages

All notifications appear in the notification tray, the pull-down tray at the top of your device screen. Error messages will pop up over the app similar to a dialog box.

Figure 50 • Manual Select Discovery Notifications and Error Messages



1	Searching for printer notification (shown at the start of the discovery process)
2	Pairing with the printer notification (shown during the discovery process)
3	Printer not found error message
4	Connection error
5	Successful pairing and discovery notification

Unpair a Printer

There are several reasons you may need to unpair a printer; as part of troubleshooting would be one example.

To unpair a printer, perform the following:

1. On your device, go to **Settings**.
2. Select **Bluetooth**.

   A list of paired devices will appear.
3. Click on the **Settings icon** beside the printer you wish to unpair.
4. Click on **Unpair**.

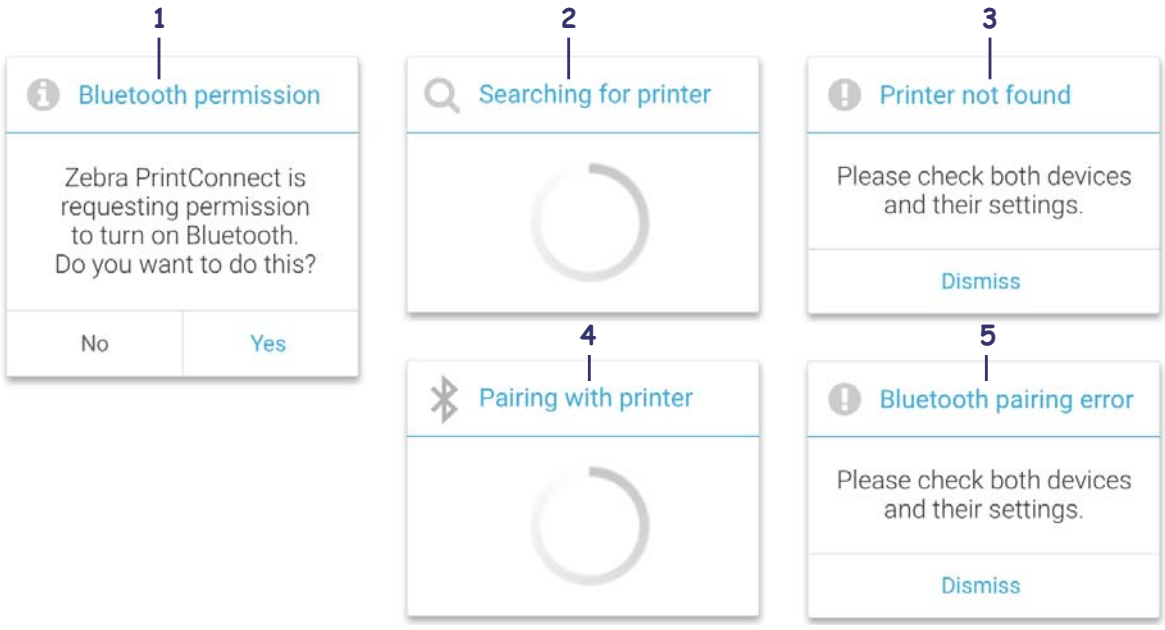
   A new scan will discover and show the Available devices. You may pair with a printer on this screen, initiate a new scan, or exit the Settings menu.

Discovery Notifications and Error Messages

Tap and Pair Notifications and Error Messages

All notifications appear in the notification tray, the pull-down tray at the top of your device screen. Error messages will pop up over the app similar to a dialog box.

Figure 51 • Tap and Pair Notifications and Error Messages

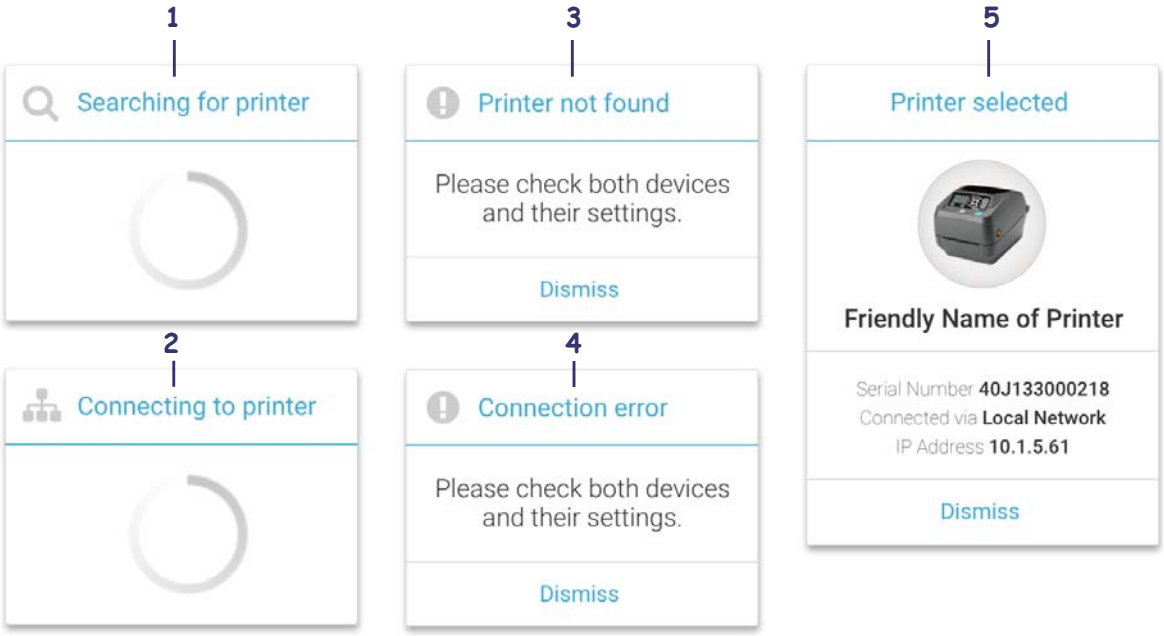


1	Bluetooth permission notification (only appears if Bluetooth is **not** turned on)
2	Searching for printer notification (shown at the start of the discovery process)
3	Printer not found error message
4	Pairing with the printer notification (shown during the discovery process)
5	Bluetooth pairing error message

Manual Select Discovery Notifications and Error Messages

All notifications appear in the notification tray, the pull-down tray at the top of your device screen. Error messages will pop up over the app similar to a dialog box.

Figure 52 • Manual Select Discovery Notifications and Error Messages



1	Searching for printer notification (shown at the start of the discovery process)
2	Pairing with the printer notification (shown during the discovery process)
3	Printer not found error message
4	Connection error
5	Successful pairing and discovery notification

Account Settings

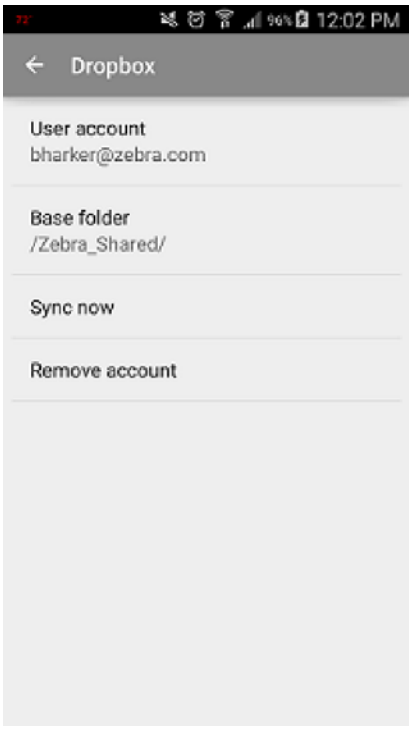
This screen allows you to sync your local files with your selected cloud account or remove the cloud account.

The available options include:

Sync now: Update the local files with files stored in the cloud.

Remove account: Remove the cloud account from PrintConnect.

Figure 53 • Account Settings



File Storage

The File Storage screen provides for the administration for local, Zebra templates, and customer cloud access.

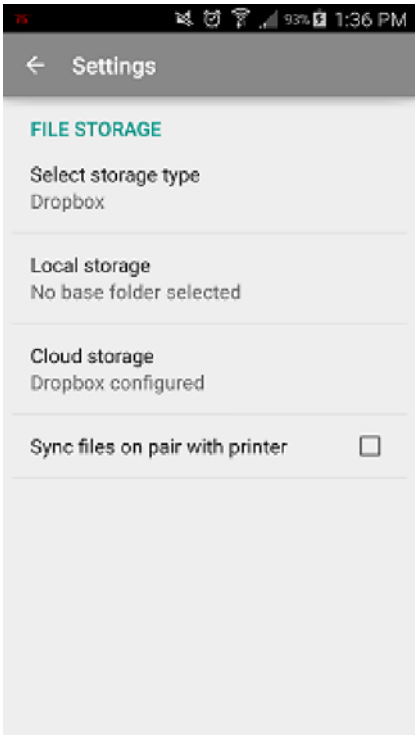
Select Storage Type: Allows user to change storage type.

Local Storage: Location of the locally stored files, including internal storage or a memory card.

Cloud Storage: Add/Edit the cloud access credentials

Synch files on pair with printer: Checkbox to enable/disable automatic file synchronization.

Figure 54 • File Storage



Available Files Screens

All available templates are stored in the cloud, the device's internal storage, or the device's SD card. The source is based on the selection in the Account Settings screen. Available files include:

- Zebra Examples (see Figure 55)
- Local Files (see Figure 55)
- Your Dropbox or Box files (see Figure 56)

Figure 55 • Zebra and Local Files

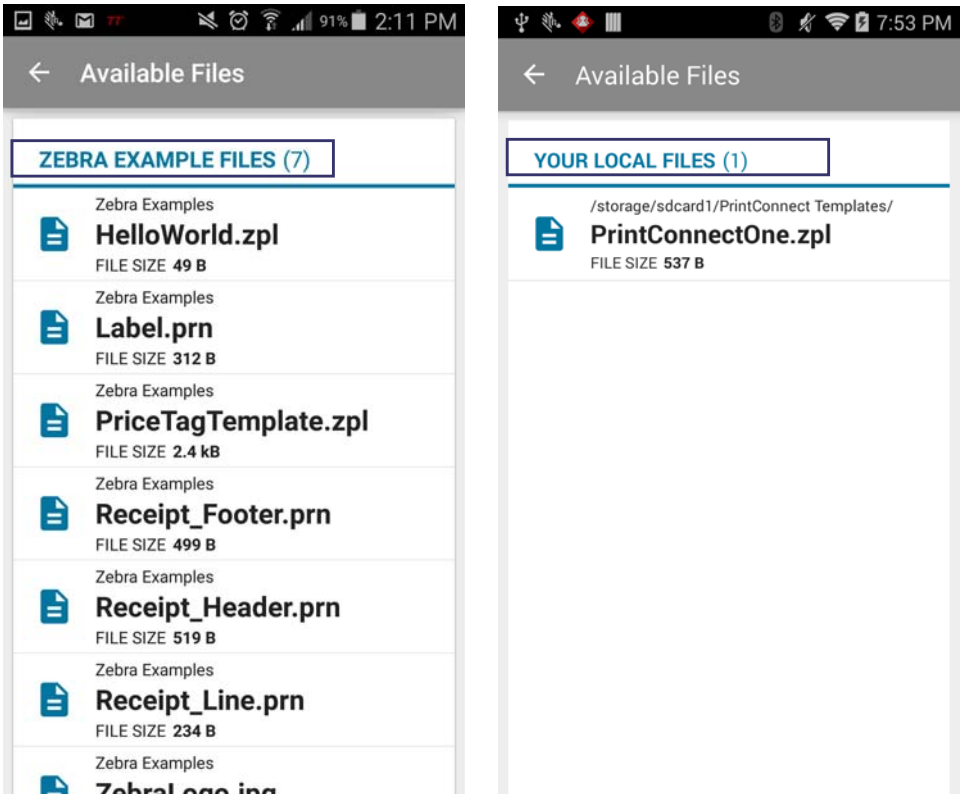
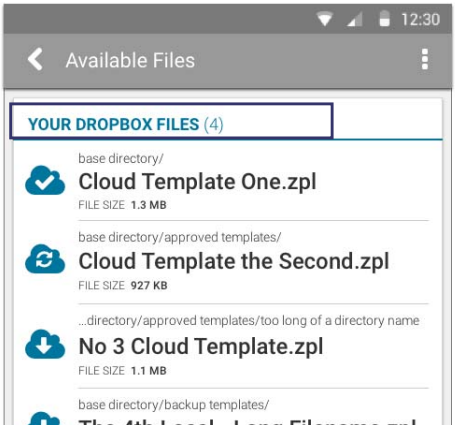


Figure 56 • Your Dropbox or Box files



Refer to Cloud File Icons for a more detailed description of the icons displayed alongside of the files stored on the cloud.

Cloud File Icons

The icons displayed next to each file indicate the following:

- Requires downloading.
- Already downloaded.
- A newer version of the file exists and requires synchronizing.
  Tap the cloud icon next to a file name to download it.

The icon will change from to indicating the file has been downloaded.

If the file on your cloud storage site is newer than the one on the device, the icon will be displayed next to the file name. Tap the icon to update your device and use the newer version of the file.

Printer Ready State

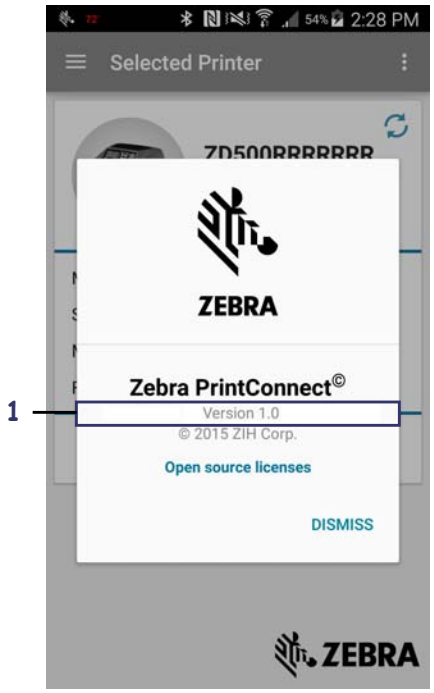
The ready state of the printers are checked at specific times. A pop-up box displays a warning if any of the printers are offline or not ready to print. Ready states are checked:

- Upon start-up of the app
- When the app gets focus back
- At the end of the discovery process
- When a printer is selected
- Before sending a print job

About This App

The About screen provides the version number for PrintConnect.

Figure 57 • About

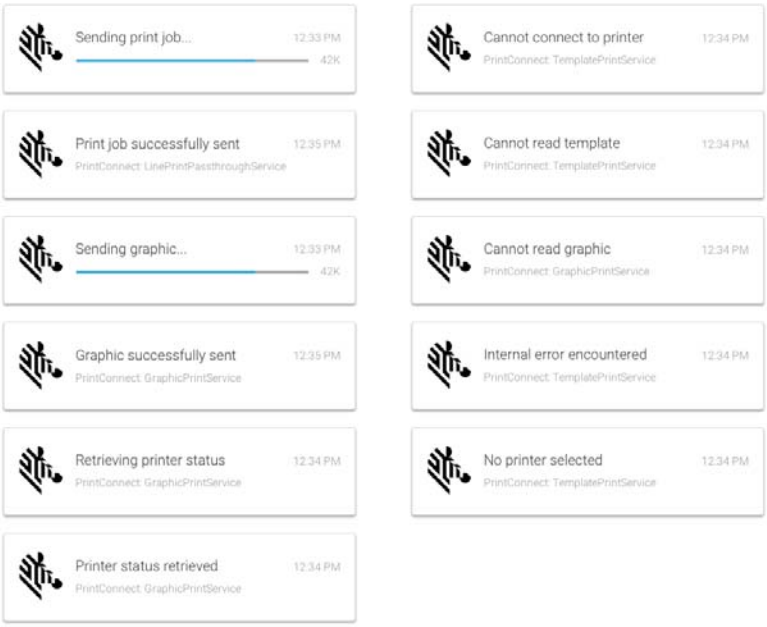


1	PrintConnect software version

Notifications and Error Messages

PrintConnect provides notifications (informative messages) to you to let you know what is happening within the app. In Figure 58, the left column shows the various notifications, while the right column shows the error messages.

Figure 58 • Notifications and Error Messages



Notes •

TestConnect

This chapter provides instructions to print using examples included in TestConnect.

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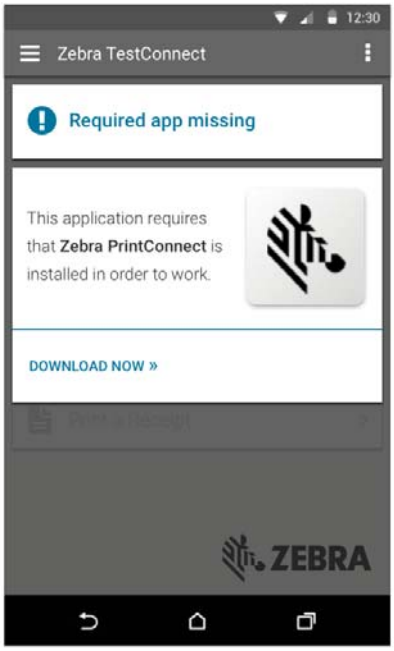
About This App 85
Error Messages 86

TestConnect Screens

Once TestConnect is downloaded, the app opens to the Dashboard screen. (You should install PrintConnect before this app. If you do not install PrintConnect first, you will receive the error shown in Figure 59 when the TestConnect dashboard opens.)

Figure 59 • Dashboard Error (PrintConnect is not installed.)

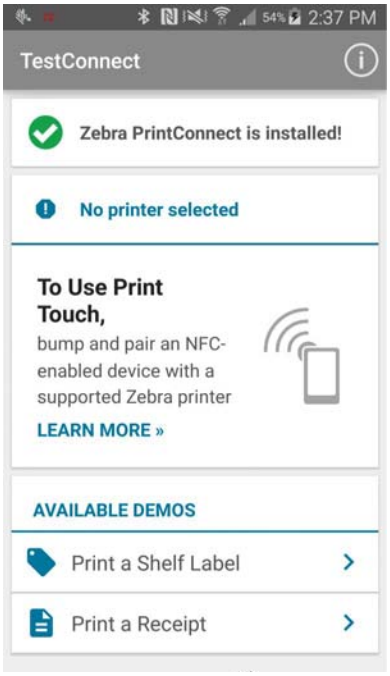


After you launch TestConnect, if this is the first time you have used the app, there is no printer selected as shown in Figure 60.

The following information is displayed on the TestConnect dashboard:

- Whether PrintConnect is installed.
- If a printer is associated with PrintConnect.
  - indicates the printer is ready to print.
  - indicates the printer is not ready to print.
- Available demos.

Figure 60 • Dashboard (First Time Use)

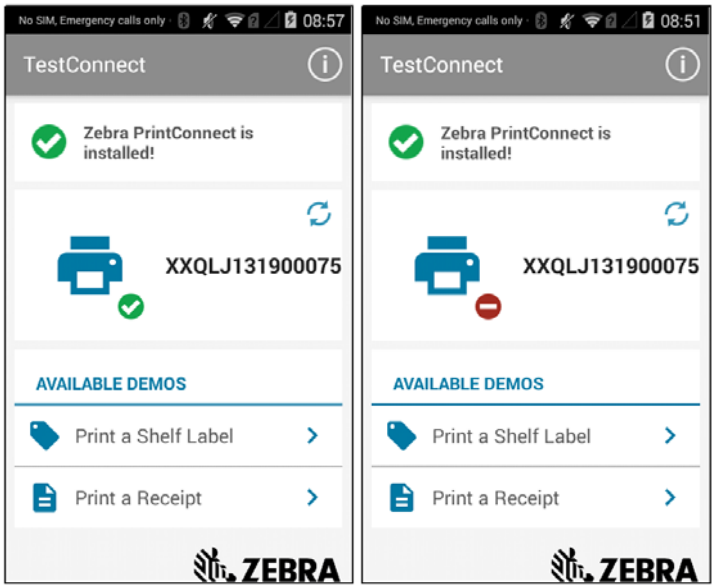


Print a Shelf Label or Receipt

Once PrintConnect is successfully associated with your printer, TestConnect can be used to test the connection. For a more detailed procedure, see Performing a Test Print on page 28.

Note • TestConnect can only be used with the PrintConnect application.

Figure 61 • TestConnect Dashboard

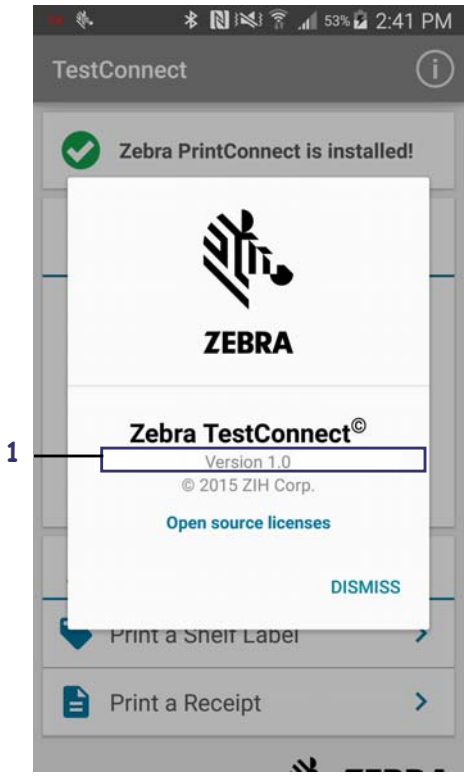


Note • The variable information is pre-programmed and cannot be changed.

About This App

The About screen provides the version number for TestConnect. See Figure 62.

Figure 62 • About

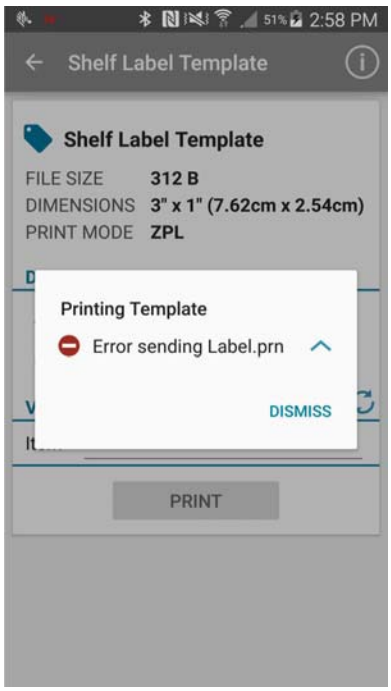


1	TestConnect software version

Error Messages

At times, you may receive an error message while attempting to print as shown in Figure 63. If you click on the ^ (caret), you will see a detailed error explanation. In this case, the Bluetooth connection was faulty, and the printer and Android device were not paired.

Figure 63 • Error Sending Label



Intents

This chapter describes Android Intents and provides sample code.

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General Intent Information 88
Template Print Intent 90
PriceTagTemplate.zpl 91
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Example Output 94
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Passthrough Intent 96
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Get Printer Status Intent 99
Unselect Printer Intent 100

Introduction to Android Intents

According to the Android Developer Guide, “An Intent is a messaging object you can use to request an action from another app component.”

Note • Template and variable data must be in UTF-8 format.

General Intent Information

Each intent is called using PrintConnect's package name and the Service's fully-qualified name. The intent is passed pieces of information, known as extras.

See Figure 64. Each intent requires a ResultReceiver (built using the buildIPCSafeReceiver() method), ComponentName, and in most cases, intent-specific extras.

Figure 64 • Sample Intent Code

```
// This method makes your ResultReceiver safe for inter-process communication
private ResultReceiver buildIPCSafeReceiver(ResultReceiver actualReceiver) {
    Parcel parcel = Parcel.obtain();
    actualReceiver.writeToParcel(parcel, 0);
    parcel.setDataPosition(0);
    ResultReceiver receiverForSending = ResultReceiver.CREATOR.createFromParcel(parcel);
    parcel.recycle();
    return receiverForSending;
}
```

Table 1 identifies the fully-qualified name for each intent.

Table 1 • Intents and Fully-Qualified Names

Intent Name	Fully-Qualified Name
Template Print	com.zebra.printconnect.print.TemplatePrintService
Template Print with Content	com.zebra.printconnect.print.TemplatePrintWithContentService
Line Print Passthrough	com.zebra.printconnect.print.LinePrintPassthroughService
Passthrough	com.zebra.printconnect.print.PassthroughService
Graphic Print	com.zebra.printconnect.print.GraphicPrintService
Get Printer Status	com.zebra.printconnect.print.GetPrinterStatusService
Unselect Printer	com.zebra.printconnect.print.UnselectPrinterService

Table 2 on page 89 shows the extra keys and fully-qualified names.

Table 2 • Intents, Extra Keys, and Extra Types

Intent Name	Extra Key	Extra Type
com.zebra.printconnect.print.TemplatePrintService	com.zebra.printconnect.PrintService.TEMPLATE_FILE_NAME	String
	com.zebra.printconnect.PrintService.VARIABLE_DATA	HashMap<String, String>
	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.TemplatePrintWithContentService	com.zebra.printconnect.PrintService.TEMPLATE_DATA	byte[]
	com.zebra.printconnect.PrintService.VARIABLE_DATA	HashMap<String, String>
	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.GraphicPrintService	com.zebra.printconnect.PrintService.GRAPHIC_FILE_NAME	String
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_ROTATION	int
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_TOP	int
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_LEFT	int
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_BOTTOM	int
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_CENTER	Boolean
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_SCALE_X	int
	com.zebra.printconnect.PrintService.GRAPHIC_FILE_SCALE_Y	int
	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.LinePrintPassthroughService	com.zebra.printconnect.PrintService.LINE_PRINT_DATA	byte[]
	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.PassthroughService	com.zebra.printconnect.PrintService.PASSTHROUGH_DATA	byte[]
	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.GetPrinterStatusService	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver
com.zebra.printconnect.print.UnselectPrinterService	com.zebra.printconnect.PrintService.RESULT_RECEIVER	ResultReceiver

Template Print Intent

The template printing process is initiated by sending an intent to PrintConnect with the fully-qualified name '`com.zebra.printconnect.print.TemplatePrintService`'. It receives the file name and variable data to produce a ZPL print job and sends the print job to the selected printer. For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88 and Table 2 Intents, Extra Keys, and Extra Types on page 89.

Note • This intent sets the printer to ZPL mode before sending the template.

The following sample code illustrates how to use the PrintConnect template printing service.

See Figure 65. The sample code below shows how to use the TemplatePrintIntent class (defined later in this chapter) to merge a HashMap of variable data into the 'PriceTagTemplate.zpl' template, print the resulting label, and receive a result.

Figure 65 • Template Print Intent Sample Code

```
Button templatePrint = (Button) findViewById(R.id.templatePrint);
templatePrint.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // Define a hash map of variable data
        // Strings used for keys will be replaced by their corresponding values in your template file's ZPL
        HashMap<String, String> variableData = new HashMap<>();
        variableData.put("%PRODUCT_NAME%", "Apples");
        variableData.put("%MSRP%", "$1.00");
        variableData.put("%PCT%", "50");
        variableData.put("%FINAL%", "$0.50");
        variableData.put("%UPC_CODE%", "12345678");

        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.TemplatePrintService"));
        intent.putExtra("com.zebra.printconnect.PrintService.TEMPLATE_FILE_NAME", "PriceTagTemplate.zpl");
        intent.putExtra("com.zebra.printconnect.PrintService.VARIABLE_DATA", variableData);
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful print
                } else {
                    // Handle unsuccessful print

                    // Error message (null on successful print)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

...and the PriceTagTemplate.zpl file is...Figure 66.

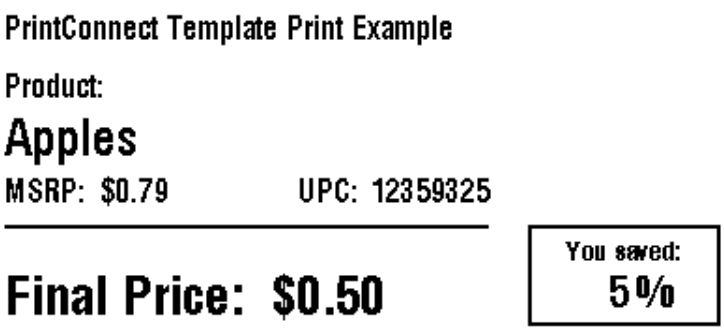
PriceTagTemplate.zpl

Figure 66 • Price Tag Template Sample ZPL Code

```
CT~~CD,~CC^~CT~
^XA~TA000~JSN^LT0^MNW^MTD^PON^PMN^LH0,0^JMA^PR4,4~SD10^JUS^LRN^CI0^XZ
^XA
^MMT
^PW591
^LL0203
^LS0
^FT171,82^A0N,27,26^FH\^FDvar_productName^FS
^FT222,107^A0N,17,16^FH\^FDvar_msrp^FS
^FT424,163^A0N,23,24^FB82,1,0,R^FH\^FDvar_pct^FS
^FT314,167^A0N,28,28^FH\^FDvar_final^FS
^FT367,107^A0N,17,16^FH\^FDvar_upcCode^FS
^FT471,138^A0N,14,14^FH\^FDYou saved:^FS
^FO451,119^GB103,54,2^FS
^FT171,20^A0N,17,16^FH\^FDPrintConnect Template Print Example^FS
^FT171,167^A0N,28,28^FH\^FDFinal Price:^FS
^FT171,51^A0N,17,16^FH\^FDProduct:^FS
^FT171,107^A0N,17,16^FH\^FDMSRP:^FS
^FT508,163^A0N,23,24^FH\^FD%^FS
^FT328,107^A0N,17,16^FH\^FDUPC:^FS
^FO171,119^GB259,0,2^FS
^PQ1,0,1,Y^XZ
```

Example Output

Figure 67 • Template Print Example



Template Print with Content Intent

The template printing process is initiated by sending an intent to PrintConnect with the fully-qualified name '`com.zebra.printconnect.print.TemplatePrintWithContentService`'. It receives the template data and variable data to produce a ZPL print job and sends the print job to the selected printer.

See Figure 68. The dynamic data is set in the intent's extra data. For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88 and Table 2 Intents, Extra Keys, and Extra Types on page 89.

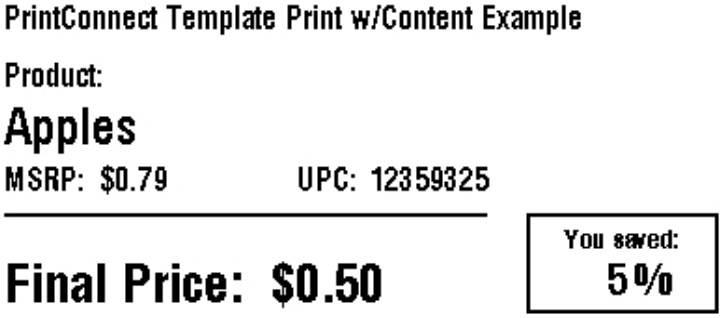
Note • This intent sets the printer to ZPL mode before sending the template.

Figure 68 • Template Print with Content Intent Sample Code

```
Button templatePrintWithContent = (Button) findViewById(R.id.templatePrintWithContent);
templatePrintWithContent.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // Define template ZPL as a string to be converted into a byte array
        String templateData = "\u0010CT~~CD,~CC^~CT~\n" +
                "^XA~TA000~JSN^LT0^MNW^MTD^PON^PMN^LH0,0^JMA^PR4,4~SD10^JUS^LRN^CI0^XZ\n" +
                "^XA\n" +
                "^MMT\n" +
                "^PW591\n" +
                "^LL0203\n" +
                "^LS0\n" +
                "^FT171,82^A0N,27,26^FH\\^FD%PRODUCT_NAME%^FS\n" +
                "^FT222,107^A0N,17,16^FH\\^FD%MSRP%^FS\n" +
                "^FT424,163^A0N,23,24^FB82,1,0,R^FH\\^FD%PCT%^FS\n" +
                "^FT314,167^A0N,28,28^FH\\^FD%FINAL%^FS\n" +
                "^FT367,107^A0N,17,16^FH\\^FD%UPC_CODE%^FS\n" +
                "^FT471,138^A0N,14,14^FH\\^FDYou saved:^FS\n" +
                "^FO451,119^GB103,54,2^FS\n" +
                "^FT171,20^A0N,17,16^FH\\^FDPrintConnect Template Print Example^FS\n" +
                "^FT171,167^A0N,28,28^FH\\^FDFinal Price:^FS\n" +
                "^FT171,51^A0N,17,16^FH\\^FDProduct:^FS\n" +
                "^FT171,107^A0N,17,16^FH\\^FDMSRP:^FS\n" +
                "^FT508,163^A0N,23,24^FH\\^FD%^FS\n" +
                "^FT328,107^A0N,17,16^FH\\^FDUPC:^FS\n" +
                "^FO171,119^GB259,0,2^FS\n" +
                "^PQ1,0,1,Y^XZ\n";

        byte[] templateBytes = null;

        try {
             // Convert template ZPL string to a UTF-8 encoded byte array, which will be sent as an extra with the intent
             templateBytes = templateData.getBytes("UTF-8");
            } catch (UnsupportedEncodingException e) {
            // Handle exception
        }

        // Define a hash map of variable data
        // Strings used for keys will be replaced by their corresponding values in your template file's ZPL
        HashMap<String, String> variableData = new HashMap<>();
        variableData.put("%PRODUCT_NAME%", "Apples");
        variableData.put("%MSRP%", "$1.00");
        variableData.put("%PCT%", "50");
        variableData.put("%FINAL%", "$0.50");
        variableData.put("%UPC_CODE%", "12345678");

        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.TemplatePrintWithContentService"));
        intent.putExtra("com.zebra.printconnect.PrintService.TEMPLATE_DATA", templateBytes); // Template ZPL as UTF-8
            encoded byte array
        intent.putExtra("com.zebra.printconnect.PrintService.VARIABLE_DATA", variableData);
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful print
                } else {
                    // Handle unsuccessful print

                   // Error message (null on successful print)
                   String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

Example Output

Figure 69 • Template Print with Content Example



Line Print Passthrough Intent

The line print passthrough process is initiated by sending an intent to PrintConnect with the fully-qualified name '`com.zebra.printconnect.print.LinePrintPassthroughService`'.

Note • Line Print Passthrough only works on Zebra's mobile printers.

See Figure 70. The line print data is sent as the intent's extra data. The intent sends data without specifying the language.

For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88 and Table 2 Intents, Extra Keys, and Extra Types on page 89.

Figure 70 • Line Print Passthrough Intent Sample Code

```
Button linePrintPassthrough = (Button) findViewById(R.id.linePrintPassthrough);
linePrintPassthrough.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String linePrintString = "Hello world!\n"; // Define line print string to be converted into a byte array

        byte[] linePrintBytes = null;

        try {
            // Convert line print string to a UTF-8 encoded byte array, which will be sent as an extra with the intent
            linePrintBytes = linePrintString.getBytes("UTF-8");
        } catch (UnsupportedEncodingException e) {
            // Handle exception
        }

        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.LinePrintPassthroughService"));
        intent.putExtra("com.zebra.printconnect.PrintService.LINE_PRINT_DATA", linePrintBytes);
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful print
                } else {
                    // Handle unsuccessful print

                    // Error message (null on successful print)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
             }
        }));

        startService(intent);
    }
});
```

Passthrough Intent

The passthrough process is initiated by sending an intent to PrintConnect with the fully-qualified name '`com.zebra.printconnect.print.PassthroughService`'.

See Figure 71. The passthrough data is sent as the intent's extra data. The intent sends data without specifying the language. For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88 and Table 2 Intents, Extra Keys, and Extra Types on page 89.

Figure 71 • Passthrough Intent Sample Code

```
Button passthrough = (Button) findViewById(R.id.passthrough);
passthrough.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // Define passthrough data as a string to be converted into a byte array
        String passthroughData = "\u0010CT~~CD,~CC^~CT~\n" +
                "^XA~TA000~JSN^LT0^MNW^MTD^PON^PMN^LH0,0^JMA^PR4,4~SD10^JUS^LRN^CI0^XZ\n" +
                "^XA\n" +
                "^MMT\n" +
                "^PW591\n" +
                "^LL0203\n" +
                "^LS0\n" +
                "^FT171,82^A0N,27,26^FH\\^FDBananas^FS\n" +
                "^FT222,107^A0N,17,16^FH\\^FD$0.99^FS\n" +
                "^FT424,163^A0N,23,24^FB82,1,0,R^FH\\^FD10^FS\n" +
                "^FT314,167^A0N,28,28^FH\\^FD$0.89^FS\n" +
                "^FT367,107^A0N,17,16^FH\\^FD8424245^FS\n" +
                "^FT471,138^A0N,14,14^FH\\^FDYou saved:^FS\n" +
                "^FO451,119^GB103,54,2^FS\n" +
                "^FT171,20^A0N,17,16^FH\\^FDPrintConnect Template Print Example^FS\n" +
                "^FT171,167^A0N,28,28^FH\\^FDFinal Price:^FS\n" +
                "^FT171,51^A0N,17,16^FH\\^FDProduct:^FS\n" +
                "^FT171,107^A0N,17,16^FH\\^FDMSRP:^FS\n" +
                "^FT508,163^A0N,23,24^FH\\^FD%^FS\n" +
                "^FT328,107^A0N,17,16^FH\\^FDUPC:^FS\n" +
                "^FO171,119^GB259,0,2^FS\n" +
                "^PQ1,0,1,Y^XZ\n";

        byte[] passthroughBytes = null;

        try {
            passthroughBytes = passthroughData.getBytes("UTF-8"); // Convert passthrough data string to a UTF-8 encoded
                byte array, which will be sent as an extra with the intent
        } catch (UnsupportedEncodingException e) {
            // Handle exception
        }

        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.PassthroughService"));
        intent.putExtra("com.zebra.printconnect.PrintService.PASSTHROUGH_DATA", passthroughBytes);
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful print
                } else {
                    // Handle unsuccessful print

                    // Error message (null on successful print)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

Graphic Print Intent

Graphic printing is initiated by the '`com.zebra.printconnect.print.GraphicPrintService`' intent. The image file name and image options are in the intent's extra data. It sets the printer to ZPL mode and leave the printer in ZPL mode at the completion of graphic printing.

See Figure 72 on page 98. Graphic Printing supports OS-compatible images, monochrome only, and data is sent to printer in a dot-to-dot transfer. If the image exceeds width or length settings, printer is expected to truncate the image.

For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88 and Table 2 Intents, Extra Keys, and Extra Types on page 89.

Table 3 shows the available options, ranges, and strings.

Table 3 • Options, Ranges, and Strings

Option	Ranges
Scaling	<no scaling, print width, DPI/Image sizing>
Dithering	<floyd implementation in SDK only>
Variable Length	<set ^LL to the dot length>
Rotation	<0, 90, 180, 270>
Image type	• JPG • PNG • BMP • GIF

Figure 72 • Graphic Print Intent Sample Code

```
Button graphicPrint = (Button) findViewById(R.id.graphicPrint);
graphicPrint.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.GraphicPrintService"));
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_NAME", "ZebraLogo.jpg");
        // Image rotation in degrees (0, 90, 180, 270)
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_ROTATION", 180);
        // Image margin top in dots
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_TOP", 10);
        // Image margin left in dots
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_LEFT", 0);
        // Image margin bottom in dots
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_MARGIN_BOTTOM", 10);
        // Center image horizontally (default is false)
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_CENTER", true);
        // Image horizontal scaling amount in percentage points (5-300)
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_SCALE_X", 25);
        // Image vertical scaling amount in percentage points (5-300)
        intent.putExtra("com.zebra.printconnect.PrintService.GRAPHIC_FILE_SCALE_Y", 25);
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful print
                } else {
                    // Handle unsuccessful print

                    // Error message (null on successful print)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

Get Printer Status Intent

The printer status retrival process is initiated by the 'com.zebra.printconnect.print.GetPrinterStatusService' intent.

See Figure 73. For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88.

Figure 73 • Get Printer Status Intent Sample Code

```
Button getPrinterStatus = (Button) findViewById(R.id.getPrinterStatus);
getPrinterStatus.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.GetPrinterStatusService"));
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful printer status retrieval

                    // Hash map of printer status conditions (null when no printer selected)
                    HashMap<String, String> printerStatusMap = (HashMap<String, String>)
                        resultData.getSerializable("PrinterStatusMap");
                } else {
                    // Handle unsuccessful printer status retrieval

                    // Error message (null on successful printer status retrieval)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

Unselect Printer Intent

The printer deselection process is initiated by the '`com.zebra.printconnect.print.UnselectPrinterService`' intent.

See Figure 74. For more detailed information about the required string associated with this intent, see Table 1 Intents and Fully-Qualified Names on page 88.

Figure 74 • Unselect Printer Intent Sample Code

```
Button unselectPrinter = (Button) findViewById(R.id.unselectPrinter);
unselectPrinter.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent intent = new Intent();
        intent.setComponent(new ComponentName("com.zebra.printconnect",
            "com.zebra.printconnect.print.UnselectPrinterService"));
        intent.putExtra("com.zebra.printconnect.PrintService.RESULT_RECEIVER", buildIPCSafeReceiver(new
            ResultReceiver(null) {
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                if (resultCode == 0) { // Result code 0 indicates success
                    // Handle successful printer deselection
                } else {
                    // Handle unsuccessful printer deselection

                    // Error message (null on successful printer deselection)
                    String errorMessage = resultData.getString("com.zebra.printconnect.PrintService.ERROR_MESSAGE");
                }
            }
        }));

        startService(intent);
    }
});
```

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