

PDF Printing Made Simple

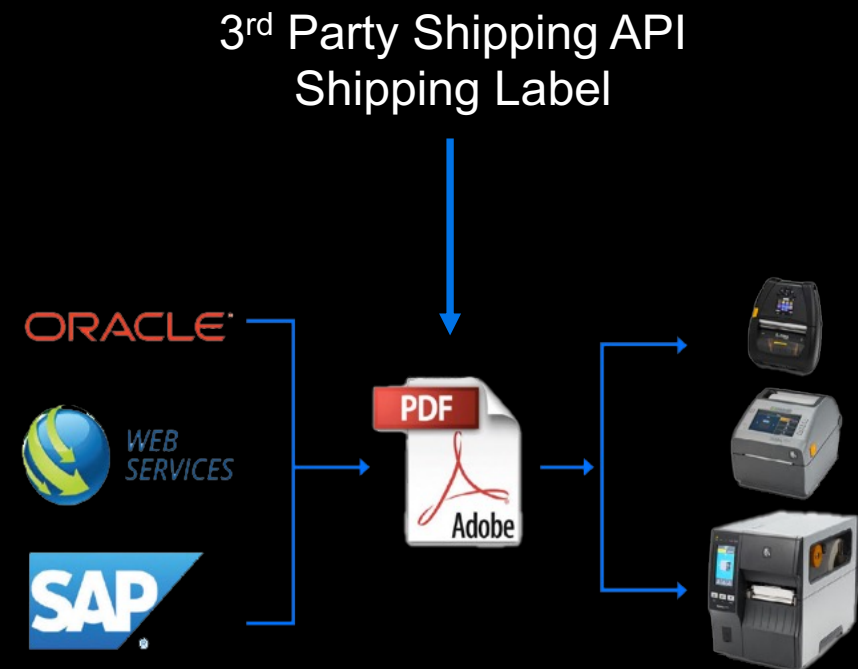
Steven Si

Sr. Software Engineer

PDF Emulation - Benefits

a.k.a. PDF Direct, is part of the Printer Emulations Family

- Simplifies the Printing of PDFs
- Eliminates Middleware Dependency
- No Need to Learn Specific Printer Languages
- Print Documents
- Eliminates Need to Scale Documents
- Reduces Scanning Errors



Printer Emulations

Virtual Devices are now called Printer Emulations

- On-printer Apps
 - Enable the use of a variety of printer command languages
- Optimized
 - Ensure fast throughput, while delivering high quality labels and receipts
- Multiple Emulations
 - Can be installed to a single printer
- Printers with emulation installed
 - Can be managed and secured using the Printer Profile Manager Enterprise application

Factory Installed since
Link-OS 6.4*

PDF, Datamax, ESC-POS,
Intermec, Monarch, Sato

All Emulations
are Available
on the Printer
Emulations
webpage on
zebra.com

Apex, Boca, Label Point,
Microcom, O'Neil, Printronix,
TEC

Printer Emulations

Supported printers

Desktop	Mobile	Industrial
1. ZD200	12. ZQ310	25. ZT210
2. ZD888	13. ZQ320	26. ZT220
3. ZD410D	14. ZR318	27. ZT230
4. ZD420C	15. ZR328	28. ZT411
5. ZD420D	16. ZQ511	29. ZT421
6. ZD420T	17. ZQ521	30. ZT510
7. ZD500	18. ZQ610	31. ZT610
8. ZD500R	19. ZQ620	32. ZT620
9. ZD510	20. ZQ630	33. ZE511
10. ZD620D	21. ZR658	34. ZE521
11. ZD620T	22. ZR668	
12. ZD421C		
13. ZD421D		
14. ZD421T		
15. ZD621D		
16. ZD621T		

* ZT2x0, ZD2xx and ZR3x8 series printers are the exception. They will not have the emulations factory installed due to memory constraints.

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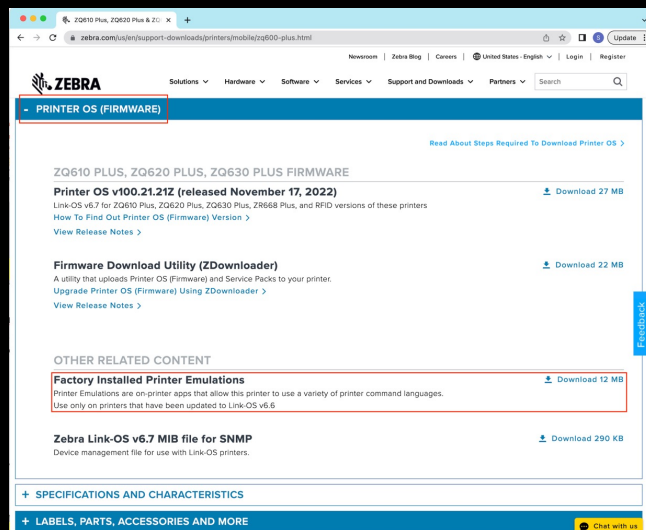
Apex, Boca, Label Point,
Microcom, O'Neil, Printronix,
TEC

Printer Emulations – Where to Find?

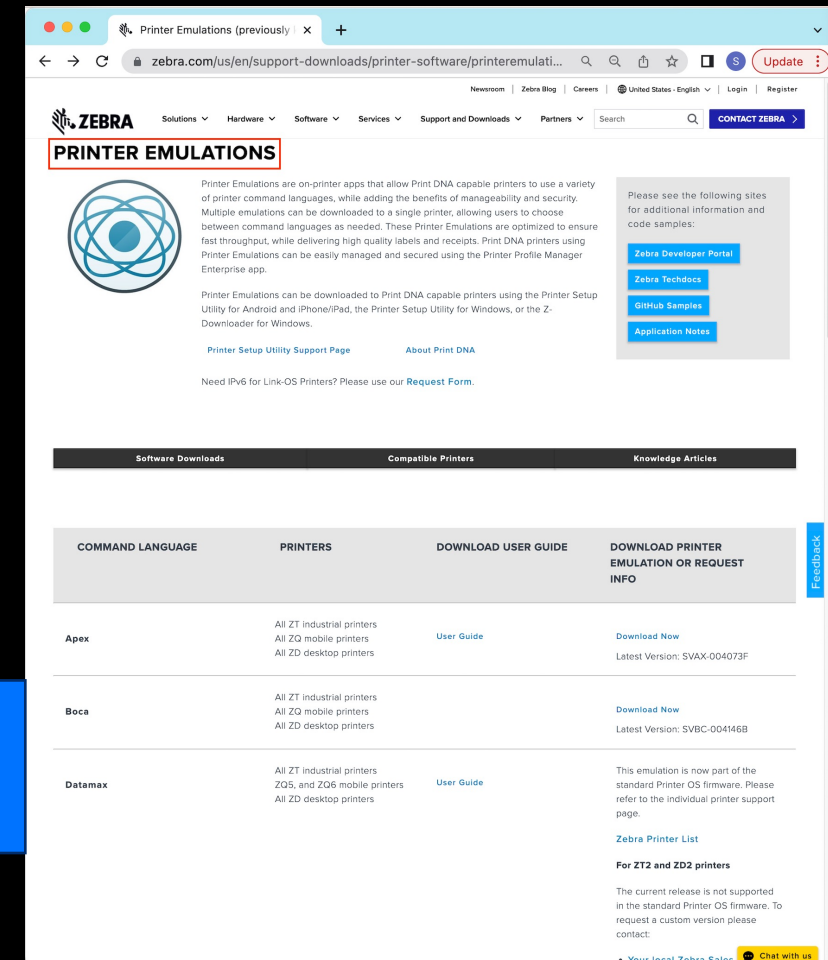
<https://www.zebra.com/us/en/support-downloads/printer-software/printeremulations.html>



- Emulations are available for download on zebra.com
 - By searching for the “Printer Emulations”
- Factory installed emulations
 - Available for download from the firmware section of the printer support webpage



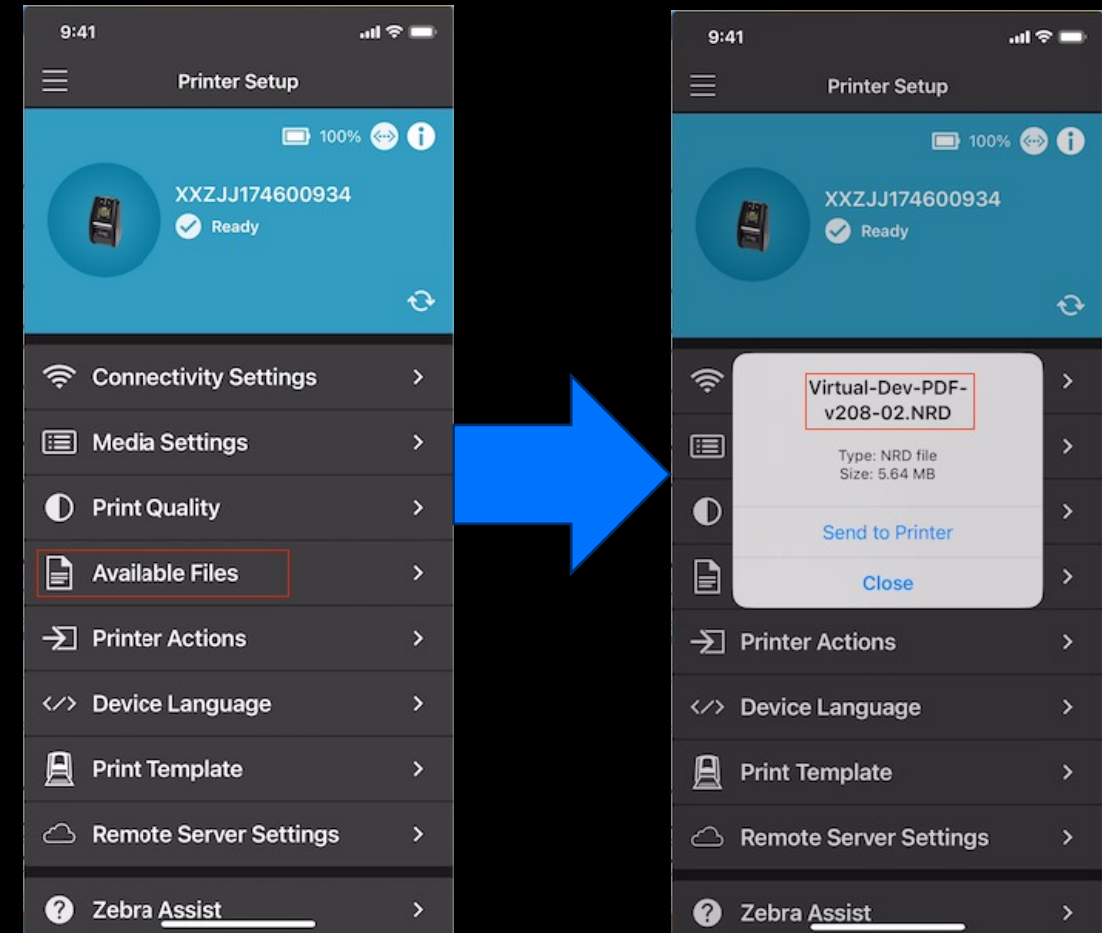
PDF Emulation is inside the downloaded zip file



Printer Emulations Installation

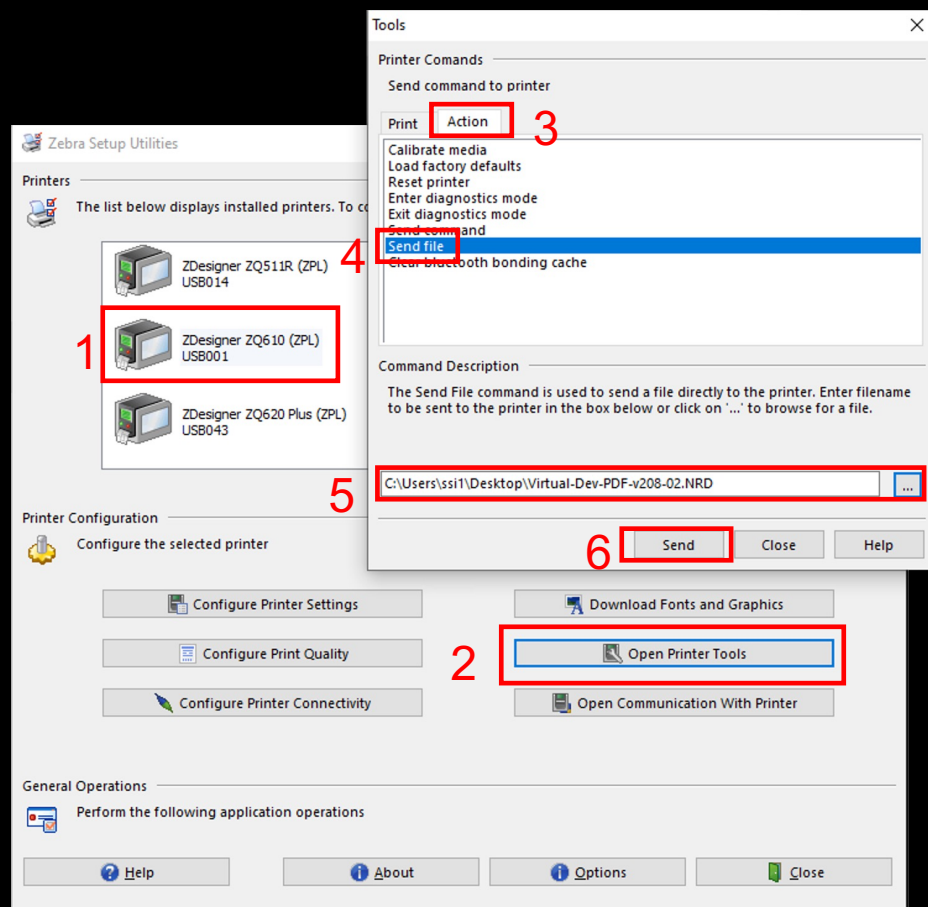
On Mobile

- The emulations can be installed via one of the following tools.
 - Printer Setup Utility for Android and iOS
 - Printer Setup Utility for Windows
 - Z-Downloader for Windows
- PDF emulation
 - Virtual-Dev-PDF-vXXX-YY.NRD
 - Inside the IncludedPrinterEmulations.zip, downloaded from the Factory Installed Printer Emulations file

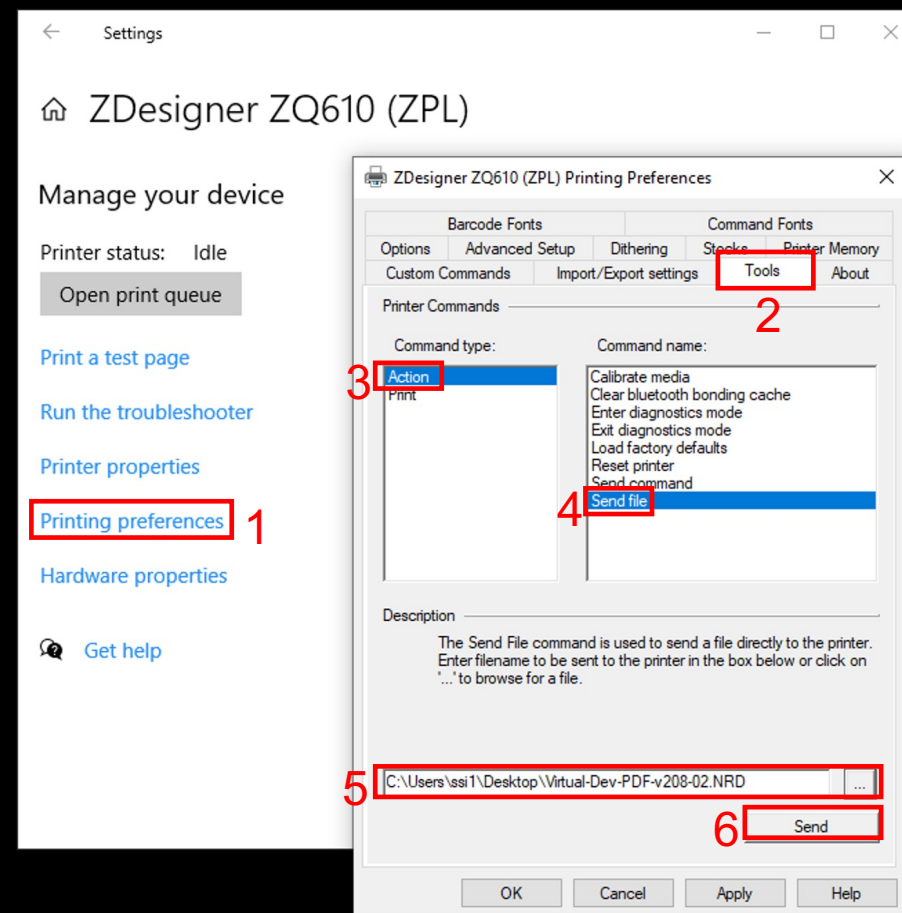


Printer Emulations Installation - Windows

- Printer Setup Utilities for Windows



- Zdesigner Driver



PDF Emulation Enable / Disable

a.k.a. PDF Direct

- Enable/Disable PDF Emulation
 - ! U1 setvar "apl.enable" "pdf"
 - ! U1 setvar "apl.enable" "none"
- Configure PDF Emulation Settings
 - ! U1 setvar "apl.settings" "dither scale=50x50 scale-to-fit no-varlen orient=N"

PDF Emulation Settings - "apl.settings"

a.k.a. PDF Direct

- dither: Dithering
 - Off by default.
- scale: Scale Factor
 - Off by default. Scale=WxH, where the W and H are percentages, ranging from 1 to 100.
- scale-to-fit: Auto-Scale/Rotate
 - Off by default. Modifies the size of the text & image to fit the media and rotates if needed. Takes precedence over scale. Example:
 - ! U1 setvar "apl.settings" "scale-to-fit no-varlen orient=N"
- no-varlen: Variable Length
 - On by default in journal mode, which disables the scale-to-fit. To turn off, include no-varlen in apl.settings. Example:
 - ! U1 setvar "apl.settings" "scale-to-fit no-varlen"
- Orient: Orientation (N/I)
 - Top-first (Inverted) by default. To change, include orient=N in apl.settings.

Printer Emulations – Query the Settings

```
! U1 getvar "apl"
```

Received:6 bytes
apl.

Received:201 bytes
apl.enable : pdf , Choices: pdf,none
apl.framework_version : 1.3
apl.version : 2.08-02
apl.settings : scale-to-fit no-varlen orient=N
apl.o.
apl.o.graphics_byte_width : 48 , Choices: 0-255

Delete PDF Emulation

- Disable PDF Emulation
 - ! U1 setvar "apl.enable" "none"
- Clear PDF Emulation Settings
 - ! U1 setvar "apl.settings" ""
- Delete PDF Emulation
 - ! U1 do "file.delete" "pdf.apl"
- Use SGD
 - ! U1 setvar "apl.enable" "none"
 - ! U1 setvar "apl.settings" ""
 - ! U1 do "file.delete" "pdf.apl"
- Or Use JSON
 - {{
 - "apl.enable" : "none"
 - "apl.settings" : ""
 - "file.delete" : "pdf.apl"
 - }

PDF Print Programmatically

Use Link-OS Multiplatform SDK



- Supported Connectivity
 - Serial Port
 - Parallel Port
 - USB
 - Bluetooth®
 - Classic
 - Low Energy
 - Network
 - TCP
 - Cloud-Connection
 - WebSocket (Link-OS 6.7 or later)

Send PDF file with `sendFileContents()` API in Link-OS SDK

```
public void sendPdfFile(ZebraPrinter printer) {  
    try {  
        // Sending PDF file with sendFileContents() API  
        printer.sendFileContents(getPdfFilePath("MyShippingLabel.pdf").getAbsolutePath());  
    } catch (ConnectionException e1) {  
        helper.showErrorDialogOnGuiThread("Error sending file to printer");  
    } catch (IOException e) {  
        helper.showErrorDialogOnGuiThread("Error creating file");  
    }  
}  
  
public File getPdfFilePath(String pdfFilename) {  
    File directory = Environment.getExternalStoragePublicDirectory(Environment.DIRECTORY_DOWNLOADS);  
  
    File[] pdfFiles = directory.listFiles(new FileFilter() {  
        @Override  
        public boolean accept(File file)  
        {  
            return (file.getPath().endsWith("pdfFilename"));  
        }  
    });  
  
    return pdfFiles[0];  
}
```

PDF Print Programmatically

Use the SendFileToPrinter API – Cloud-based Printing



```
curl -X 'POST' \
  'https://api.zebra.com/v2/devices/printers/send' \
  -H 'accept: text/plain' \
  -H 'apikey: UUBPTeoGjN68qQqg4BONmalTYFXa33z' \
  -H 'tenant: bb62a0cd13e235750402689a723309b1' \
  -H 'Content-Type: multipart/form-data' \
  -F 'sn=XXZJJ174600934' \
  -F 'zpl_file=@ZebraLogo_2x2.pdf;type=application/pdf'
```

A screenshot of a web browser showing the "SendFileToPrinter" API interface. The browser address bar shows the URL "developer.zebra.com/apis/sendfiletoprinter-model#/SendFileToPrinter/...". The interface has a "Parameters" section with a "Cancel" button and a "Reset" button. Below this is a table with two columns: "Name" and "Description". The table contains three rows: "apikey" (required, string, header) with value "UUBPTeoGjN68qQqg4BONmalTYFXa33z", "tenant" (required, string, header) with value "bb62a0cd13e235750402689a723309b1", and "sn" (required, string) with value "XXZJJ174600934". Below the table is a "Request body" section with a dropdown menu set to "multipart/form-data". The "Request body" section contains two rows: "sn" (required, string) with value "XXZJJ174600934", and "zpl_file" (required, string (\$binary)) with a "Choose File" button and the file name "ZebraLogo_2x2.pdf". At the bottom of the interface are two buttons: "Execute" and "Clear".

PDF Print Programmatically

Use the Browser Print SDK – JavaScript API



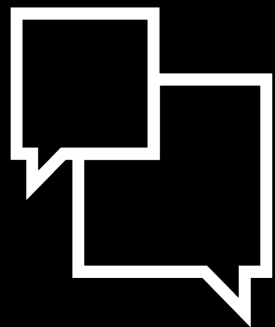
```
function sendFile(fileUrl){  
    url = window.location.href.substring(0, window.location.href.lastIndexOf("/"));  
    url = url + "/" + fileUrl;  
    selected_device.sendFile(url, undefined, errorCallback)  
}  
  
<input type="button" value="Send PDF File" onclick="sendFile('PDF_2x2.pdf');"><br/><br/>
```



Resources



- Printer Emulations Download
 - <https://www.zebra.com/us/en/support-downloads/printer-software/printeremulations.html>
- PDF Emulation (a.k.a. PDF Direct)
 - <https://www.zebra.com/us/en/software/printer-software/pdf-direct-printer-emulation.html>
- PDF Emulation Settings
 - https://www.zebra.com/content/dam/zebra_new_ia/en-us/manuals/printers/common/programming/zpl-zbi2-pm-en.pdf#page=650



Questions

Thank You

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