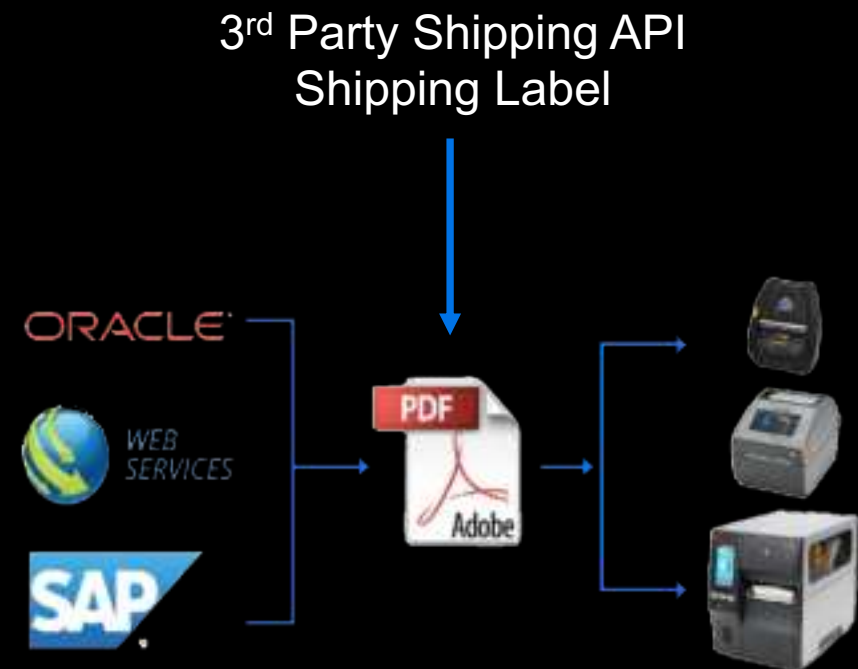# PDF Printing Made Simple

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*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

3rd Party Shipping API
Shipping Label

# 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 | | |

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

**Factory Installed since Link-OS 6.4\***

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

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

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

# 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
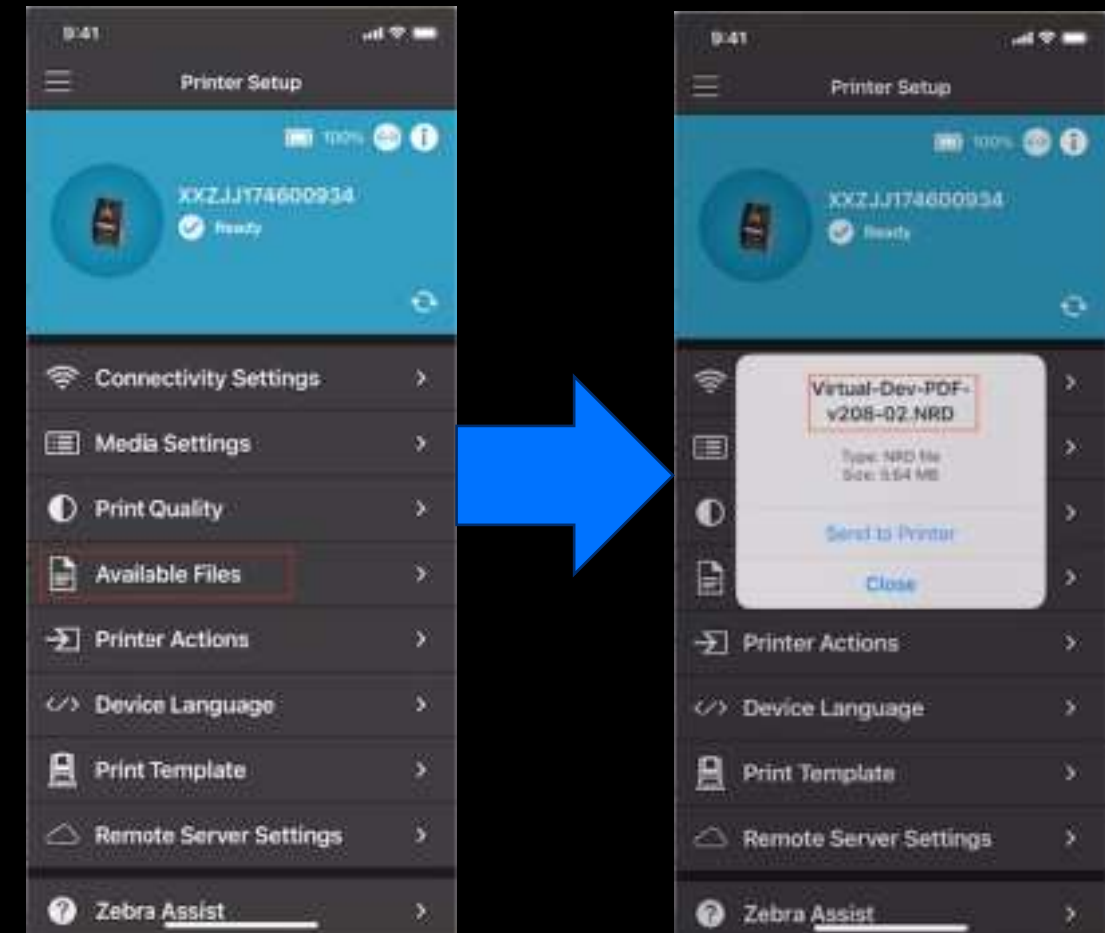  - Available for download from the firmware section of the printer support webpage

**PDF Emulation is inside the downloaded zip file**
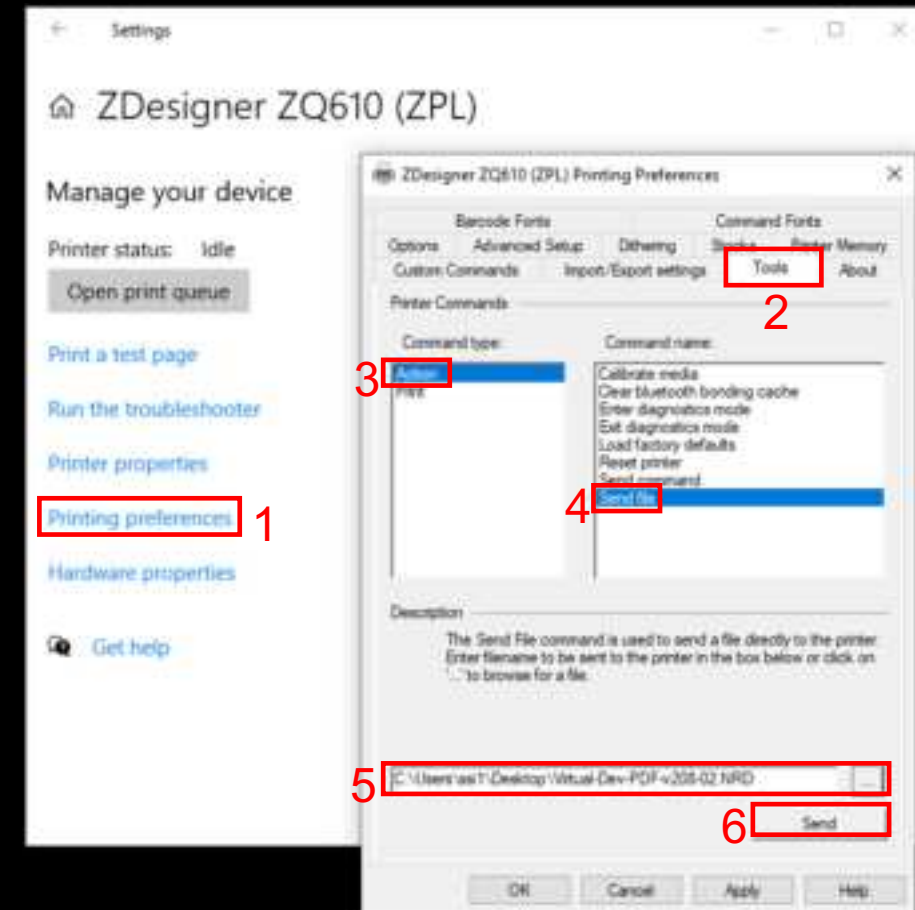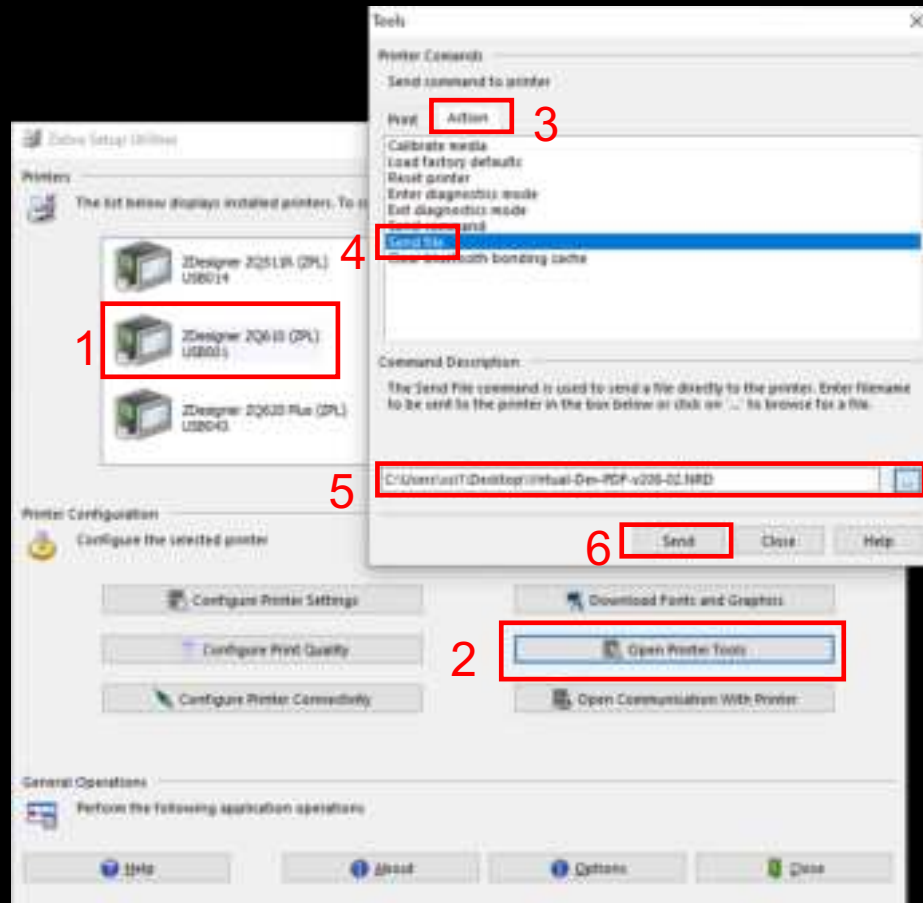
# Printer Emulations Installation
## On Mobile

- 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**

```java
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: UUBPTeoGjN68qQqg4BONmalfTyFXa33z' \
    -H 'tenant: bb62a0cd13e235750402689a723309b1' \
    -H 'Content-Type: multipart/form-data' \
    -F 'sn=XXZJJ174600934' \
    -F 'zpl_file=@ZebraLogo_2x2.pdf;type=application/pdf'
```

# 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