IPSC Tissue Bank - Wu Lab

This custom EM to manage storage and distribution of tissue sample vial for Wu iPSC lab. The EM assumes the presences of a "sample" instrument and "vial" instrument. The "vial" instrument is displayed within the "sample" instrument in two separate tables, depending on the vial status.

When a new sample is created, the initial number of slots in the A, B or D freezer is entered in the sample form. The freezer slots are assigned according to the following algorithm:
- If the number of slots for a freezer is less than 5, then the first freezer box with enough freezer slots is selected, and freezer slots are filled from lowest to highest, but not necessarily in consecutive order.
- If the number of slots for a freezer is greater or equal to 5, then the first empty freezer box is selected. If the box prior to the first empty freezer box has enough <u>consecutive</u> spaces, then the prior box is selected. Slots are filled consecutively, from lowest to highest.

After the sample has been created, new vials are assigned a random vial id and freezer space is assigned to the vial according to the next available slot in the designated freezer.

If the vial has status "frozen", then multiple bulk operations are possible -- distribute, print, move and delete
- Distribute - moves the vial status from "frozen" to "planned" or "shipped"
- Print - print the cryovial label for the vial
- Move - Assign a new freezer space for the vial
- Delete - Remove the vial from the database

If the vial has status "planned" or "distributed", then only two options are possible
- Cancel - move "planned" vials back to "frozen" status. If the vial already has "shipped" status, then do nothing.
- Delete - Remove the vial from the database

Custom Reports

The EM includes two custom reports
- The Planned Report - reports vials in "planned" status. Vials can be bulk assigned to "shipped" status from this report.
- The Empty Slot Report - reports available freezer slots
- The Moved Report - reports moved and previous location of vials

Printer Setup

The EM relies on installation of the [Zebra Browser Driver](#) on the machine on which the EM is being used. In addition, the machine must have the networked printer installed. Unfortunately, Zebra does not provide a Mac OS driver and the 3rd party driver does not work well. **Printing is only available on Windows machines until a reliable Mac OS Zebra driver is available.**

Installing the Zebra Printer on a Windows machine:

1. Under Settings/Printers & Devices, Add printers & scanners, select "The printer that I want isn't listed".
2. Select "Add a local printer or network printer with manual settings"

×

← Add Printer

Find a printer by other options

○ My printer is a little older. Help me find it.

○ Find a printer in the directory, based on location or feature

○ Select a shared printer by name

[   ] [Browse...]

Example: \\computername\printername or
http://computername/printers/printername/.printer

○ Add a printer using a TCP/IP address or hostname

○ Add a Bluetooth, wireless or network discoverable printer

◉ Add a local printer or network printer with manual settings

[Next] [Cancel]

3. Create a new port with type "Standard TCP/IP Port"

×

← Add Printer

Choose a printer port

A printer port is a type of connection that allows your computer to exchange information with a printer.

○ Use an existing port: [LPT1: (Printer Port)   ▼]

◉ Create a new port:

Type of port: [Standard TCP/IP Port   ▼]

[Next] [Cancel]

4. Enter the printer IP address and give the printer a name.
5. Select "Custom" for the device type

×

Add Printer

Additional port information required

The device is not found on the network. Be sure that:

1. The device is turned on.
2. The network is connected.
3. The device is properly configured.
4. The address on the previous page is correct.

If you think the address is not correct, click Back to return to the previous page. Then correct the address and perform another search on the network. If you are sure the address is correct, select the device type below.

Device Type

○ Standard   Generic Network Card

◉ Custom   Settings...

Next   Cancel

6. Select "Raw" protocol, enter 9100 for port number

Configure Standard TCP/IP Port Monitor   ×

Port Settings

Port Name: ZebraZD420_1050AArastradero

Printer Name or IP Address: 171.65.101.43

Protocol
  ◉ Raw   ○ LPR

Raw Settings
Port Number: 9100

LPR Settings
Queue Name:
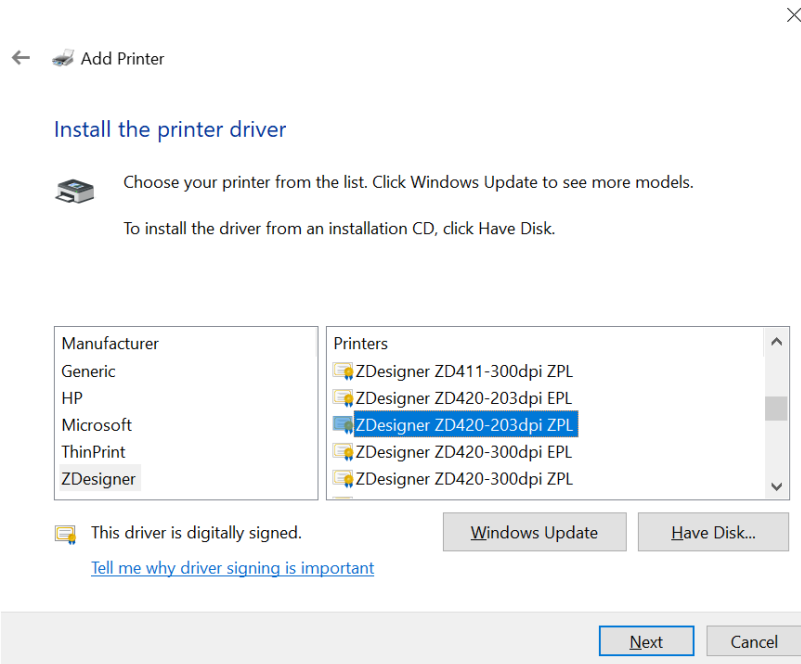
☐ LPR Byte Counting Enabled

☐ SNMP Status Enabled

Community Name: public

SNMP Device Index: 1

OK   Cancel

7. Select ZDesigner, ZDesigner ZD420 203dpi ZPL (or whatever the printer model is. Make sure to select "ZPL" and the correct dpi)

✕

← 🖨 Add Printer

Install the printer driver

Choose your printer from the list. Click Windows Update to see more models.

To install the driver from an installation CD, click Have Disk.

Manufacturer	Printers
Generic	🖨 ZDesigner ZD411-300dpi ZPL
HP	🖨 ZDesigner ZD420-203dpi EPL
Microsoft	**ZDesigner ZD420-203dpi ZPL**
ThinPrint	🖨 ZDesigner ZD420-300dpi EPL
ZDesigner	🖨 ZDesigner ZD420-300dpi ZPL

🖥 This driver is digitally signed.

Tell me why driver signing is important

Windows Update   Have Disk...

Next   Cancel

Zebra Browser Driver

To configure the Zebra Browser Driver:
1. Install the Zebra Browser Driver on the machine on which you installed the Zebra printer.
2. Go to settings and set the wireless Zebra printer as the default printer.
   a. The first time you connect to the printer from redcap, you will get a popup asking for permission to connect. You should then see "redcap.stanford.edu" listed under "Accepted Hosts"
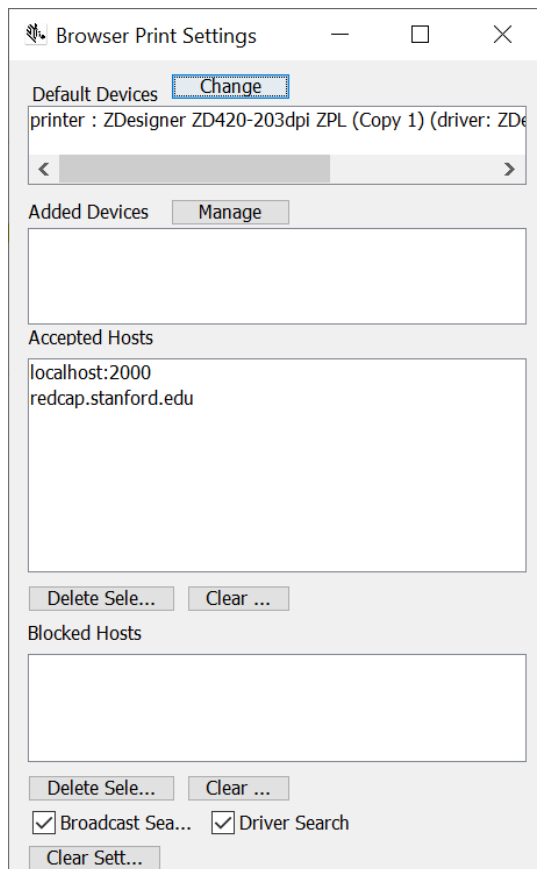

3. Before printing labels from Redcap, ensure that the Zebra Browser printer is enabled. You should be able to see a small Zebra icon in your Windows System tray if Zebra Browser Print is enabled.
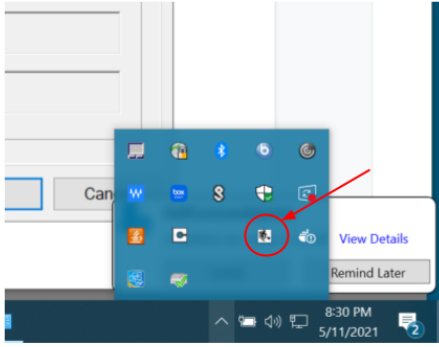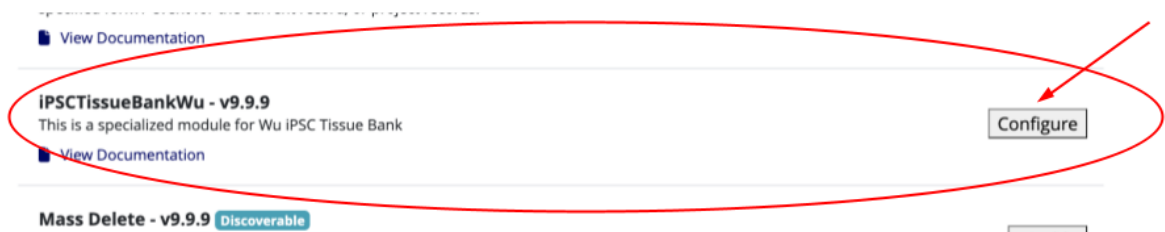
Configure Label Horizontal and Vertical Shift

This setting shift the label vertically and horizontally within the label. It does not shift the position of the label itself

1. On left sidebar in redcap project, near the bottom, click on the "Manage" link next to "External Modules.
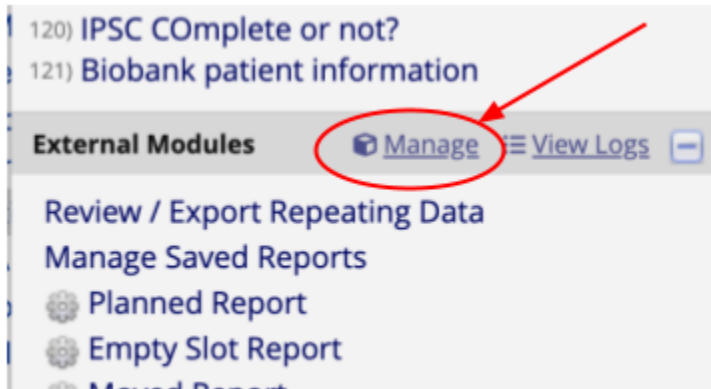
2. Find the iPSC External module and click "Configure

3. Modify the vertical and horizontal shift values and click "Save". Note that increasing or decreasing the shift values too much will cause label text to over lap.

Enable Debug Logging
(optional) Requires installation and configuration of emLogger:

☐

Horizontal label offset (default = 50 if unset):

5

Vertical label offset (default = 15 if unset):

18

Configuring the Printer

1. Calibrate the printer - "Pause" + "Feed" together. Hold until labels start moving
2. Using Zebra Setup Utilities (Windows only)
   a. Select the correct printer and click "Configure Printer Settings".
   b. Use the following settings:
      i. Label Size Units=inch, Width=1.0, Height=0.75, Orientation="Normal"
      ii. Darkness 22 or higher
      iii. Speed 2
      iv. Print Mode: Transfer, Media Type: Web Sensing, Tear off adjust: 0.00, Label Shift: 0.00
      v. Finish
3. Select the Zebra printer and click "Configure Printer Connectivity". Used the following settings:
   a. Wired
   b. Internal Print Server
   c. DHCP
   d. Finish
4. Check Wifi connectivity using Zebra setup facility:
   a. Ping the ip address
   b. "Open Communication Printer" and use one of the following options:

      i. ^XA ^HH ^XZ
      ii. ^XA ^HZA ^XZ (full configuration)
      iii. ! U1 getvar "interface.network.active.ip_addr" (wired configuration)
      iv. ! U1 getvar "ip.addr"
   c. NOTE: http and ftp access of printers is not allowed on Stanford network
   d. Use ^XA ^HZA ^XZ to get the MAC address. Make sure it's the MAC Address of the printer, not the bluetooth or wireless connections.
5. **When all other configuration efforts fail**, use "Open Communication Printer" and ZPL to configure the printer.
   a. To shift labels up:
      i. ^XA ^LT<amount to shift> ^XZ
      ii. Amount to shift ranges between -120 to 120